

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1949



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
St. Albans, England

March, 1950

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Windsor Tower Drive, Herts. Road,
St. Albans, England

HELMINTHOLOGICAL ABSTRACTS

Vol. 18, Part 3

1949

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INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1949

Vol. 18, Part 3

130—Aarsskrift den Kongelige Veterinaer- og Landbohøjskole. København.

- a. CHRISTENSEN, N. O. & ROTH, H., 1949.—“Investigations on internal parasites of dogs.” Year 1949, pp. 1-73.

(130a) The incidence of helminths in 100 dogs examined in Copenhagen during 1945 was as follows: *Toxocara canis* 27%, *Toxascaris leonina* 11%, *Dipylidium caninum* 6%, *Taenia pisiformis* 3%, *Cryptocotyle lingua* 17%, *C. concava* 2%, *Mesorchis denticulatus* 2%. The absence of *Taenia hydatigena*, *T. multiceps* and *Echinococcus granulosus* is attributed to changed conditions in the city slaughterhouses. Other helminths found by the authors in recent years are annotated. Experimental feeding of dogs with salt-water fishes revealed that the most important vector of *Cryptocotyle lingua* was *Gadus callarias*: the encysted metacercariae were visible in the skin of practically all cod sold in Copenhagen and produced heavy infections in puppies. *Pleuronectes platessa* and *Platichthys flesus* gave rise to numerous *C. concava* and *Pygidioopsis genata*, but only a few *C. lingua*. The plaice is a new host for *C. lingua* and *P. genata*, and the flounder for *C. lingua*. *Ancylostoma caninum*, *C. concava* and *Alaria alata* are recorded from dogs in Denmark for the first time. R.T.L.

131—Acta Medica Italica di Malattie Infettive e Parassitarie.

- a. LIDDO, S., 1949.—“Ancora sull'uncinariosi in Puglia.” 4 (1), 9-11. [English, French & German summaries pp. 10-11.]

(131a) The general absence of ancylostomiasis in Puglia is correlated with the dry calcareous soil of most of the region, with the exception of the Salentina peninsula which has an argillaceous soil and where indigenous cases have been reported. Two cases now reported from the provinces of Bari and Taranto are attributed to the passage of foreign troops through the areas concerned; in one case *Necator americanus* was identified. E.M.S.

132—Acta Tropica. Basle.

- a. BAER, J. G., 1949.—“Contributions à la faune helminthologique africaine.” 6 (1), 41-45.
b. BAER, J. G., KOURI, P. & SOTOLONGO, F., 1949.—“Anatomie, position systématique et épidémiologie de *Inermicapsifer cubensis* (Kouri, 1938) Kouri 1940, cestode parasite de l'homme à Cuba.” 6 (2), 120-130. [English & German summaries pp. 129-130.]
c. JOYEUX, C. & BAER, J. G., 1949.—“L'hôte normal de *Raillietina* (R.) *demerariensis* (Daniels, 1895) en Guyane hollandaise.” 6 (2), 141-144.

(132a) Baer mentions that a number of the type specimens of Monticelli, Parona, and Stossich in the University Institute of Zoology at Naples were destroyed during the war. The two African species *Taenia isomydis* Setti, 1892, and *Taenia* (*Andrya*) *dipi* Parona, 1900, have been considered nomina nuda. Baer gives a description of the types, which are still available. He places the former species in *Paranoplocephala* and the latter in *Oochoristica*. R.T.L.

(132b) In part I of this paper Baer redescribes the original material upon which the species *Inermicapsifer cubensis* was based, and discusses its systematic position. He considers *I. cubensis* a well founded species, which approaches most closely to *I. arvicanthidis* of African rodents, but differs in the small size of the cirrus pouch and much larger number of

* Titles so marked throughout this number have not been seen in the original.

egg capsules. In Part II Kourí, Sotolongo & Baer deal with the epidemiology and diagnosis of human *I. cubensis* infections, of which more than a hundred had been reported up to 1948. Most of these cases occurred in children, particularly those between 1-5 and 9-11 years of age. The earliest case was in a child five months old. All except two of the cases occurred in white inhabitants. It is presumed that the infection reached Cuba from Africa in rodents and became adapted to man. As purgation with castor oil easily dislodges this tapeworm, diagnosis should be based on the scolex, which shows no trace of rostellum, hooks, or spines on the suckers. The gravid segments of *Inermicapsifer* alone cannot be readily distinguished from those of *Raillietina*. R.T.L.

(132c) Two specimens of *Raillietina* (R.) *demerariensis*, known hitherto only in man, have been found in *Alouatta seniculus* in Dutch Guiana. These howling monkeys are considered to be its normal host. R.T.L.

133—Acta Veterinaria Hungarica.

- a. KOTLÁN, A., 1949.—"On the histotropic phase of the parasitic larvae of *Hyostrongylus rubidus*." 1 (2), 76-82.

(133a) The development of the larvae of *Hyostrongylus rubidus* in the glands of the gastric mucosa of pigs produces inflammatory changes which may cause partial destruction of the epithelial lining and the formation of lentil-sized nodules. Development is completed in 13-14 days. In rabbits infected experimentally the larvae may remain in the depth of the mucosa indefinitely. The nodules are then more distinct and the histological changes in the mucosa are of a chronic character. R.T.L.

134—Agricultural Gazette of New South Wales.

- a. ANON., 1949.—"Stomach fluke of cattle at Casino." 60 (8), 438.

(134a) At Casino, in New South Wales, infection with "stomach fluke" occurred in over 50% of the heifers between nine and twelve months old, and on some properties the mortality among the infected animals reached 20%. This condition was also observed in the Glen Innes district but there were no heavy losses. R.T.L.

135—Agriculture. Montreal.

- a. PELCHAT, V., 1949.—"L'hypoderme du boeuf et les vers nodulaires du mouton réduisent les profits." 6 (1), 68-70.

136—American Journal of Clinical Pathology.

- a. HILL, J. H., 1949.—"Asymptomatic *Schistosoma japonicum* infection associated with rectal carcinoma. Report of a case." 19 (10), 985-989.

137—American Journal of Diseases of Children.

- a. OCHSNER, A., DeBAKEY, E. G. & DIXON, J. L., 1949.—"Complications of ascariasis requiring surgical treatment. Report of case with abdominothoracic complications." 77 (3), 389-407.
b. DENHOFF, E. & LAUFER, M. W., 1949.—"Pinworm infection and childhood behavior." 77 (6), 746-752.

(137b) *Enterobius vermicularis* is generally an innocuous infection in children but the occurrence of certain non-specific gastro-intestinal, peri-anal and behavioural complaints becomes manifest with a high degree of parasitism. This led the authors to undertake an evaluation of these symptoms in resident patients with heavy pinworm infections in a children's psychiatric hospital. Anorexia, hyperactivity, masturbation and nail-biting were apparently more frequent in the 28 infected children than in twelve controls, but statistical analysis revealed no significant relationship. No improvement in the symptoms could be attributed to removal of the parasites by anthelmintic treatment. R.T.L.

138—American Journal of Hygiene.

- a. MACFARLANE, W. V., 1949.—"Schistosome dermatitis in New Zealand. Part I. The parasite." 50 (2), 143-151.
- b. MACFARLANE, W. V., 1949.—"Schistosome dermatitis in New Zealand. Part II. Pathology and immunology of cercarial lesions." 50 (2), 152-167.
- c. TANG, C. C., 1949.—"Sweet-potato cultivation and hookworm disease in Fukien, South China." 50 (2), 236-262.

(138a) Macfarlane reports that "swimmer's itch" in New Zealand is due to a schistosome cercaria of Miller's group D. This cercaria was recovered from the pulmonates *Myxas ampulla*, *M. arguta* and *Limnaea alfredi* and has been named *Cercaria longicauda* n.sp. Emergence from the mollusc occurs at any time of day. Warmth and light seem to stimulate emergence. The cercariae are positively phototropic and negatively geotropic. Macfarlane failed to infect the domestic duck, fowl, pigeon or canary. Miracidia were obtained by successful infection of the black teal, *Fuligula novae zealandiae*. No adult worms were recovered. P.L.ler.

(138b) Macfarlane describes and illustrates the clinical features and the histopathology of the lesions associated with the infection of man by *Cercaria longicauda*. The primary lesion is of maculo-papular type and lasts for 7-12 days, to be followed by a secondary papulo-urticarial lesion which arises from the infiltration of the invaded layers of the skin by macrophages and small round cells. It is suggested that the cercariae contain enzymes and tissue products which are antigenic substances. Antihistamine, applied externally, relieves the itching; dimethyl phthalate may be a useful preventive. P.L.ler.

(138c) Earlier views that hookworm disease is negligible in the Fukien province of China are shown to be erroneous. An investigation in the coastal areas by Tang shows that the severity of the disease is comparable with that in the worst hookworm areas in other parts of China. Both *Necator americanus* and *Ancylostoma duodenale* occur in this region. The chief sources of infection are the nursery beds and permanent fields of sweet-potato. Although human faeces would theoretically be sterilized by storage this would involve too drastic a change in the habits of the people to be practicable. The mixing of lime or ammonium sulphate would reduce the time factor and add to the fertilizer value. Improvement in the worker's diet by introducing better methods of catching and preserving sea fish is advocated. R.T.L.

139—American Journal of Hygiene. Monograph Series.

- a. CHANG, K. ET AL., 1949.—"Studies on hookworm disease in Szechwan Province, West China." No. 19, x + 152 pp.

(139a) In a silk-producing centre in southern Szechwan hookworm was present in 71.9% of the farmers but egg-counts showed that infection was negligible in 58%. Mulberry cultivation, as practised in Szechwan, is definitely not a source of infection. The favourable climate and the use of nightsoil on vegetables and farm crops are held responsible for its high incidence and low intensity in this region. The worst cases of hookworm disease are in the hilly regions in northern Szechwan where maize and sweet-potatoes are two main food crops. At Langchung the incidence was 97% among the farmers; the average haemoglobin was 46.1% and the average count of eggs in faeces was 3,300 per c.c. In eastern and southern Szechwan hookworm disease was similarly found to be associated with maize and sweet-potato cultivation. Of 163 patients attending the Yingshan field clinic (eastern Szechwan), 98.2% were positive and the average egg-count reached 5,090 eggs per c.c. Many of the patients showed severe symptoms; the average haemoglobin was 42.6%, the lowest being 9%. Of 255 patients at Da Shan Pu, near Tzeliutsing (southern Szechwan), 99.2% were positive with an egg-count averaging 4,917 per c.c.; the haemoglobin averaged 40.5%, the lowest being 5%. Rice occupies about 51.5% of the total crop area in Szechwan, and although it is fertilized with nightsoil this is shown not to be an important factor in the

spread of hookworm, for the infection among rice farmers in West Szechwan was low in incidence (28.4%) and light in degree (403 eggs per c.c.), and hookworm disease was practically unknown. Among vegetable farmers, however, the incidence was 70-8% and the egg-count averaged 1,092 per c.c. Sugarcane is also an important crop, but the widespread and moderate hookworm incidence in a sugar-producing area studied in central Szechwan is largely attributed to the cultivation of maize and sweet-potatoes, often as a mix-crop. There was no evidence that growing of citrus trees was a factor in the spread of hookworm disease in Szechwan. *Ancylostoma duodenale* is more prevalent in northern Szechwan, and *Necator americanus* in southern Szechwan. Under present conditions the most practical method of reducing the disease is to modify slightly the pattern of maize and sweet-potato intercropping. The usual practice is to plant maize on one side of the potato ridge near the furrow, fertilizing it with nightsoil. Later on potato vines are set on the top of the ridge, the farmer walking along the furrow in which nightsoil had previously been deposited. The amended scheme is to plant maize on the right and left sides of alternate furrows, thus leaving unplanted with maize a furrow along which the farmer can safely walk to set the sweet-potatoes on the ridges.

R.T.L.

140—American Journal of Ophthalmology.

- a. JUNIOR, L., 1949.—“Ocular cysticercosis.” 32 (4), 523-547. [Discussion p. 548.]
- b. SWETT, W. F., 1949.—“Cysticercus of the vitreous.” 32 (4), 574-577.

(140a) A detailed account is given of 111 cases of ocular cysticerciasis observed at the Instituto Penido Burnier in the city of Campinas, Brazil from 1915 to 1947. Hetero-infection is commoner than auto-infection. Medical therapy and destruction of the parasite by caustics, diathermy and electrolysis are ineffective. The parasite, living or dead, must be removed. Extra-ocular cysticerciasis is benign but intra-ocular infection leads to blindness with rare exceptions. Almost all the cases were living in rural areas. Where *Taenia solium* is found a certain proportion of ocular cysticerciasis must occur but many cases have remained unrecognized. In the discussion Troncoso stated that he had seen three or four cases of intra-ocular cysticerciasis in Mexico City but none in New York.

R.T.L.

141—American Journal of Tropical Medicine,

- a. POINDEXTER, H. A., 1949.—“A laboratory epidemiological study of certain infectious diseases in Liberia.” 29 (4), 435-442.
- b. MACKIE, T. T. & SONNENBERG, B., 1949.—“Tropical disease problems among veterans of World War II.” 29 (4), 443-451.
- c. BEAVER, P. C., 1949.—“Methods of pinworm diagnosis.” 29 (4), 577-587.
- d. SHOOKHOFF, H. B. & DWORK, K. G., 1949.—“Treatment of *Loa loa* infections with hetrazan.” 29 (4), 589-593.
- e. AZAR, J. E., PIPKIN, A. C. & GARABEDIAN, G. A., 1949.—“An intensive treatment regimen of vesical schistosomiasis with fuadin.” 29 (4), 595-604.
- f. MAIER, J., 1949.—[Correspondence.] 29 (4), 641.
- g. CAWSTON, F. G., 1949.—“Schistosomiasis.” 29 (5), 715-716.
- h. WALLERSTEIN, R. S., 1949.—“Longevity of *Schistosoma mansoni*: observations based on a case.” 29 (5), 717-722.
- i. HUNTER, III, G. W., BENNETT, H. J., FRY, N. H., SEE, J. & GREENE, E., 1949.—“The control of schistosomiasis japonica. V. Studies on the penetration of various types of unimpregnated uniform cloth by cercariae of *Schistosoma japonicum*.” 29 (5), 723-737.
- j. SCHLOSSER, R. J., 1949.—“Photomicrographs of the developing larvae of *Wuchereria bancrofti* in a mosquito host of the South Pacific area.” 29 (5), 739-745.
- k. PERRY, W. J., 1949.—“The mosquitoes and mosquito-borne diseases of the Treasury Islands (British Solomon Islands).” 29 (5), 747-758.
- l. SKALIY, P. & HAYES, Jr., W. J., 1949.—“The biology of *Liponyssus bacoti* (Hirst, 1913) (Acarina, Liponyssidae).” 29 (5), 759-772.
- m. MAO, C. P., LI, L. & WU, C. C., 1949.—“Studies on the emergence of cercariae of *Schistosoma japonicum* from their Chinese snail host, *Oncomelania hupensis*.” 29 (6), 937-944.
- n. GELFAND, M., 1949.—“The diagnosis and prognosis of schistosomiasis.” 29 (6), 945-958.

- o. HITCHCOCK, D. J., 1949.—“*Enterobius* study on 320 children in the general population of East Lansing, Michigan.” 29 (6), 959-965.
- p. HOEKENGA, M. T. & BOX, L., 1949.—“The treatment of trichocephaliasis with leche de higuierón.” 29 (6), 967-971.

(141a) In this laboratory survey of the common diseases of Liberia, intestinal helminthiasis ranks highest in relative prevalence. Four tables set out the frequency and combinations of helminth infections as revealed by a single microscopical examination of faeces and urine in the Monrovia area. In the Sanoquelle District eggs of *Schistosoma haematobium* were found in the urine of 16% and eggs of *S. mansonii* occurred in the faeces of 2% of the inmates of the leprosy colony.

R.T.L.

(141b) No serious sequelae from filariasis or schistosomiasis infections were present in a routine examination of over 500 veterans at the Tropical Disease Clinic of the Regional Office of the Veterans Administration, Winston-Salem, N.C. The lack of adequately trained clinicians and laboratory technicians in tropical medicine and medical parasitology was reflected in the almost invariable failure of the veteran to obtain an accurate diagnosis before the investigation at the clinic.

R.T.L.

(141c) The NIH cellophane swab, the wet pestle swab and the transparent adhesive tape methods for the diagnosis of *Enterobius vermicularis* infection are compared. The tape method was rarely negative and frequently picked up enormous numbers of eggs when the NIH and pestle methods gave few. The introduction of a drop of toluene between the tape and the slide to clear the preparation increased the positive findings by about 24% and reduced the time taken for the microscopical examination by about 40%.

R.T.L.

(141d) Five patients were relieved of their Calabar swellings after treatment with hetrazan, 100 mg. three times daily for seven days in four cases and for ten days in the fifth case. In one case a second course of 150 mg. three times a day was necessary. There was no recurrence during the subsequent 4-10 months in which the cases were under observation. An exacerbation of the itching symptoms occurred at the beginning of the treatment but diminished markedly within 24 hours. Toxic effects were almost absent. The treatment had no effect on the microfilariae of *Acanthocheiloneperstans* which were present in three of the cases.

R.T.L.

(141e) Fifty-five Syrians infected with *Schistosoma haematobium* were given over a three-day period a course of 34 c.c. of a 6.3% solution of foudadin. Each patient received in all nine intramuscular injections. On the first day three injections (2 c.c., 4 c.c., and 4 c.c.) were given at four-hourly intervals. On the next two days three injections each of 4 c.c. were given daily at three-hourly intervals. The doses for children were halved. Reaction to the drug was generally mild. The effectiveness of the treatment was estimated by egg hatching tests made during the five days following the completion of the course of treatment and a fortnight later. During the last four days of the second period there was complete cessation of free-swimming miracidia in 70% of the cases and cessation of egg production in 50% of the cases during the last three days of the second period.

R.T.L.

(141f) Maier reports a consistent and striking reduction in microfilarial counts in Papuans in Lae, New Guinea, in all cases treated with anthiomaline. This was due however not to a disappearance of the microfilariae but to a complete reversal of periodicity. While the night-time smears tended to become negative, the daytime smears gave progressively higher counts reaching those of pre-treatment night-time smears. This effect should be taken into consideration in assessing the effect of hetrazan.

R.T.L.

(141g) That fresh infection with schistosomes is very rare after treatment is attributed to a permanent immunity following the destruction of the parasites. There is a distinct tendency for adult schistosomes to die without any treatment. Chronic symptoms are attributable to incomplete treatment or to gonorrhoea which is likely to cause serious disease of bladder and kidney in schistosomiasis patients.

R.T.L.

(141h) A case of *Schistosoma mansoni* infection in a Puerto Rican who had resided in New York City without interruption for 26 years is reported. The eggs found in a rectal polyp contained living miracidia. R.T.L.

(141i) The number of viable cercariae of *Schistosoma japonicum* which successfully penetrated samples of various types of U.S. Army uniform cloth was 2.63%, as compared with 62.5% in samples of Curity gauze which was used as a control. Any uniform trouser material would protect the legs if tucked into the top of combat boots and left slack enough to form a cuff. R.T.L.

(141j) The complete development of *Wuchereria bancrofti* in experimentally infected *Anopheles p. punctulatus* was photographed in Guadalcanal. The photomicrographs at a magnification of $\times 240$ reveal the structural details of each phase up to the infective stage. Infective-stage larvae of *Dirofilaria immitis* and *W. bancrofti* were in several instances found together in specimens of *A. p. farauti* collected from huts in the native villages. R.T.L.

(141k) The incidence of the microfilariae of *Wuchereria bancrofti* observed among the inhabitants of Falamai village on Mono Island was 0.7%. No infective-stage larvae were found during dissections of likely intermediate hosts, but *Anopheles farauti* was suspected from the presence of developing larvae in the thoracic muscles. R.T.L.

(141l) A modification of the technique of Bertram, Unsworth & Gordon [for abstract see Helm. Abs., 15, No. 81c] for rearing *Liponyssus bacoti* for the study of the transmission of *Litomosoides carinii*, renders possible the continuous observation of individual mites during their entire life. R.T.L.

(141m) Mao, Li & Wu record experiments demonstrating the influence of light, heat, drying and the pH of water on the emergence of the cercariae of *Schistosoma japonicum* from naturally infected *Oncomelania hupensis*. Temperature plays a less important role than light. Infected snails which had been kept in a moist atmosphere shed cercariae more readily and in greater numbers than those which had been kept under dry conditions for 17 days at 10°-15°C. Tap-water and filtered river water with pH values ranging from 6.6-7.8 were equally favourable for emergence. Distilled water with pH 6.6 and distilled water alkalized with NaOH to pH 7.8 proved unfavourable. It is claimed that this proves that it is not the acidity of the distilled water but something else which renders it unfavourable for emergence of cercariae. P.L.Ler.

(141n) The intradermal reaction, eosinophilia and the formol-gel test are of limited value in the diagnosis of schistosomiasis and should only be accepted as diagnostic after the clinical data have been considered. 50% of bilharzial cases do not show an eosinophilia. A negative intradermal reaction may occur in an infected patient: 34 out of 100 Africans passing eggs were negative and 20% of a series of non-bilharzial cases were positive. It is pointed out that there is no unanimity as to what constitutes a positive reaction. Rectal biopsy snips revealed 60-70% of cases of intestinal schistosomiasis. Rectal snippings of 40% of the cases of urinary bilharziasis seen were positive, although it is rare for the eggs to be excreted in the faeces. By use of a cystoscope together with a rectal snipper 80-90% of cases can be diagnosed. Calcification of the bladder as seen radiologically is a useful diagnostic sign although of limited value. The serious sequelae of schistosomiasis are hepatic cirrhosis, haematemesia or cholaemia, obstruction following deposition of eggs in the pulmonary arterioles with heart enlargement and subsequent failure, chronic symptomatic appendicitis, stricture of the ureter, hydronephrosis, calculus, secondary vesical infection and carcinoma. These are considered in some detail in relation to prognosis. R.T.L.

(141o) In 320 children between the ages of one and twelve years, from private homes in East Lansing, Michigan, perianal swabs made by Jacob's modified Graham's method

gave evidence of *Enterobius vermicularis* in 33.8%. Children from families of different income groups showed no significant difference in the rates of infection. R.T.L.

(141p) Fresh leche de higuerón, given as a single dose of 60 c.c. in 120 c.c. of milk, removed 60% of *Trichuris trichiura* from 27 patients in the Gorgas Hospital, Panama Canal Zone. The sap was obtained from either of the wild fig trees, *Ficus crassiuscula* or *F. glabrata*, during October and December. *In vitro* tests showed that the substance was rapidly and highly lethal to live *Trichuris* and *Ascaris* worms. R.T.L.

142—American Midland Naturalist.

- a. LINCICOME, D. R. & VAN CLEAVE, H. J., 1949.—“Distribution of *Leptorhynchoides thecatus*, a common acanthocephalan parasitic in fishes.” 41 (2), 421-431.
- b. MANTER, H. W., 1949.—“An additional trematode from Tortugas, Florida, and a new name for *Opisthoporus* Manter, 1947, preoccupied.” 41 (2), 432-435.
- c. FERGUSON, F. F. & JONES, Jr., E. R., 1949.—“A survey of the shore-line fauna of the Norfolk Peninsula.” 41 (2), 436-446.

(142a) Lincicome & Van Cleave have collated, from the literature as well as from their own observations, data on the hosts and known geographical distribution of *Leptorhynchoides thecatus*. Two amphibians and two reptiles act as accidental hosts, and an amphipod is host to the developing young. Seventy-nine species of fresh-water fish are known to harbour this acanthocephalan, but not all of them are definitive hosts. The factors responsible for the restriction of the distribution of this parasite, as compared with the wider distribution of its definitive and intermediate hosts, have not been resolved. Its occurrence in a hybrid cross between a great northern pike and a muskellunge (Bangham, 1946) is thought to be understandable as both parents are known to harbour this species. From a study of the original material, the authors conclude that the acanthocephalan recorded from *Cottus bubalis* and *Onos mustelus* in Wales (Rees, 1945) is not *Leptorhynchoides thecatus*, but probably a species of *Echinorhynchus*. H.C.

(142b) Manter describes a new species of spiny distome, *Cadenatella americana* n.sp., from the intestine of a marine fish, *Kyphosus incisor*, the yellow chub. The specific distinction is based chiefly on differences in size between this species and *C. cadenati*, the only other species of the genus, and Manter suggests that more adequate material of both species might show them to be identical. *C. americana* has, however, an external seminal vesicle, anus and excretory system which have not been observed in *C. cadenati*. Manter gives a list of names and localities of the known trematode and acanthocephalan parasites of *Kyphosus*. The name *Postporus* is offered in place of the preoccupied generic name *Opisthoporus* Manter, 1947. H.C.

(142c) Ferguson & Jones give a preliminary check-list of the aquatic and shore-line fauna of the Norfolk Peninsula, Virginia, together with relevant ecological notes. The list includes five species of nematodes: *Axonolaimus* sp., *Monhystera* sp., *Prochromadora oryeli*, *Chromadorita* sp. and *Oncholaimus* sp., found in brackish water on the sands and algae of Edgewater, Norfolk. H.C.

143—Anais da Academia Brasileira de Ciencias.

- a. VANNUCCI MENDES, M., 1949.—“Respiration in worms.” 21 (1), 19-54.

(143a) This resumé attempts to co-ordinate the principal known features of the respiration of the Annelida, Platyhelminthes and Aschelminthes, the latter including the Nematoda and Acanthocephala. The subject is subdivided into: (i) introduction; (ii) respiration in worms in relation to other factors; (iii) (a) worms which respire only by means of physical diffusion; (iv) (b) worms with no specialized respiratory organs but with a circulatory apparatus; (v) (c) worms which have both respiratory organs and circulatory apparatus; (vi) the blood and other respiratory fluids of worms; (vii) anaerobic

capacities of worms. Recent work on *Ascaris*, *Eustrongylides*, *Trichinella*, *Fasciola hepatica* and *Triaenophorus nodulosus* receives brief notice in (vii).
R.T.L.

144—Annales Paediatrici.

- a. ROSENBUSCH, H., 1949.—“Ascaridenperforation durch den Darm—Fremdkörperperitonitis.” 172 (4), 203.

(144a) [A fuller account of this paper appears in *Helv. paediat. Acta*, 1949, 4 (2), 164-169.]

145—Annales de Parasitologie Humaine et Comparée.

- a. BARLOW, C. H., 1949.—“Une théorie sur la ponte de *Bilharzia haematobia*.” Year 1948, 23 (5/6), 301-304.
- b. DOLLFUS, R. P., 1949.—“Nématode à oesophage sigmoïde de l'estomac d'une *Orca orca* (L. 1789) ♀ (cétacé odontocète). Liste des *Anisakis* des cétacés et des pinnipèdes.” Year 1948, 23 (5/6), 305-322.
- c. CABALLERO y C., E., 1949.—“Etudes helminthologiques sur la vallée du Rio Papaloapan (Mexique). II. Quelques filaires de batraciens et d'oiseaux.” Year 1948, 23 (5/6), 323-333.
- d. BRUMPT, E. & BUTTNER, A., 1949.—“Pouvoir infectieux des métacercaires d'echinostomides.” 24 (1/2), 9-15.
- e. BRUMPT, E. & BUTTNER, A., 1949.—“Rôle pathogène des certaines cercaires d'echinostomides s'enkystant dans les reins des têtards (infections mortelles et infections en partie prémunitives).” 24 (1/2), 16-24.
- f. TIMON-DAVID, J., 1949.—“Sur un trématode parasite des crabes en Méditerranée.” 24 (1/2), 25-28.
- g. PICK, F., 1949.—“Un cas tératologique chez le trématode *Watsonius watsoni* (Conyngham 1904) Stiles & Goldberger 1910.” 24 (1/2), 29.
- h. GALLIARD, H., MILLE, R. & ROBINSON, W. H., 1949.—“La filariose à *Wuchereria bancrofti* var. *pacifica* à Tahiti et dans l'archipel de la Société.” 24 (1/2), 30-48.
- i. LAGRANGE, E., 1949.—“Essais de chimiothérapie sur la filaire (*Icosiella neglecta*) de la grenouille (*Rana esculenta*).” 24 (1/2), 49-53.
- j. METIANU, T., 1949.—“Considérations sur la para-filariose hémorragique des bovins. *Parafilaria bovicola* en Roumanie.” 24 (1/2), 54-59.
- k. CHABAUD, A. G., 1949.—“Contribution à l'étude du cycle évolutif du genre *Metathelazia* Skinker, 1931.” 24 (1/2), 60-66.
- l. CHABAUD, A. G. & CAMPANA, Y., 1949.—“*Avioserpens galliardi* n.sp., parasite de l'aigrette *Egretta garzetta*, L.” 24 (1/2), 67-76.
- m. CHABAUD, A. G. & CAMPANA, Y., 1949.—“A propos d'une variété nouvelle de *Synhimantus equispiculatus* Wu & Liu 1943. Création d'un nouveau sous-genre (*Desportsius*) n.subgen.” 24 (1/2), 77-92.
- n. BRITO GUTTERRES, J. DE, 1949.—“*Haemonchus santomei*, n.sp., parasite de la caillette du boeuf de San Tomé.” 24 (1/2), 93-96.
- o. CABALLERO y C., E. & BRAVO HOLLIS, M., 1949.—“Description d'un nouveau genre de Pleurogeninae (Trematoda: Lecithodendriidae) de grenouilles du Mexique, *Langeronia macrocirra* n.g. n.sp.” 24 (3/4), 193-199.
- p. ANGULO, J. J. & ROQUE, A. L., 1949.—“Essai de classification des cénures.” 24 (3/4), 200-206.
- q. FAIN, A. & RAMÉE, O. DE, 1949.—“Les helminthes parasites des bovidés à Astrida (Ruanda-Urundi).” 24 (3/4), 207-210.
- r. VERMEIL, C., 1949.—“Microfilarie de la perdrix.” 24 (3/4), 395-396.

(145a) [This article was published in English in *J. Parasit.*, 1949, 35 (2), 205-207. For abstract see *Helm. Abs.*, 18, No. 25u.]

(145b) Dollfus describes an immature female specimen (fourth-stage larva) of an *Anisakis* sp. from the stomach of a female *Orca orca* caught at Saint-Jean-de-Luz (Basses-Pyrénées). A comprehensive list of cetacean and pinniped hosts of the various species of *Anisakis* and a bibliography are appended.
H.C.

(145c) Caballero y C. creates the new genus *Parachandlerella* to accommodate a filarial parasite found in the connective tissue round the pulmonary arteries of *Tyrannus* sp. in Mexico. *P. periarterialis* n.g., n.sp. approaches most closely in structure to species

of the genus *Chandlerella*, particularly *C. lepidogrammi* which is now transferred to the new genus. Both species have very marked transverse striations on the cuticle, a pair of lateral caudal processes in both sexes, and preanal and postanal papillae and subequal spicules in the male. *Monopetalonema solitarium* n.sp., from the peritoneal cavity of *Myiozetetes* sp. in Mexico, can be recognized by its size and general proportions. From the body-cavity of *Dives dives* the species *Diplotriaena conceptionis* n.sp. is described: the size and form of the spicules is a distinguishing feature. P.A.C.

(145d) Brumpt & Buttner review previous work on the infectivity to definitive hosts of metacercariae of echinostomes, and present the results of their own experimental work with echinostome metacercariae and domestic birds. These confirm the conclusions drawn from earlier published work, that massive infection of definitive hosts rarely follows the ingestion of large numbers of metacercariae. The highest infection rate they obtained was 3.8% when 70,000 metacercariae were administered to a goose, in which on autopsy were found 154 *Hypoderaeum conoideum*, 2,500 *Echinoparyphium recurvatum*, 9 *Echinostoma revolutum*, and 25 *Notocotyle attenuatus*. The infective material consisted of 172 specimens of *Limnaea auricularia*. J.J.C.B.

(145e) Tadpoles of *Rana temporaria* may act as intermediate host for *Echinoparyphium recurvatum*. The cercariae encyst in the kidneys of various amphibian tadpoles and cause the development of a marked oedema lasting for 24 hours; death may occur. The damage may be partly mechanical and partly toxic. P.A.C.

(145f) Timon-David records the presence of the metacercariae of *Spelotrema* sp. in *Carcinus maenas*. The larvae occurred in large numbers in cysts on the digestive gland. They appeared to approach in structure those of *S. carcini* which has been described from several crabs off the coasts of Britain and France. P.A.C.

(145g) Pick illustrates a specimen of *Watsonius watsoni* from *Papio sphynx* in which only one testis had developed. R.T.L.

(145h) A survey of the microfilarial index (*Wuchereria bancrofti* var. *pacifica* Manson-Bahr) in 916 people aged over five years, in the Paea district, Tahiti, revealed 280 (30.3%) positive cases. Of these 160 were males and 120 females. In children examined in four districts the infection rate was between 13% and 21.5%. At Papeete the infection rate was 31.5%. In the islands Huahine, Raiatea, Bora-Bora and Tahaa (French Oceania), children showed 0-28% and adults 19-58%. There is a high clinical index of filariasis. In Paea, out of 916 inhabitants, 182 were suffering from lymphangitis or elephantiasis (173 and 83 respectively). The coastal population has a lower infection rate than that in the mountain region (156 cases as against 229). White races are just as susceptible as the natives. Five species of mosquitoes have been recorded. Of these, *Culex fatigans*, *Aedes aegypti*, *Aedes scutellaris pseudo-scutellaris* and *Culex annulirostris* are common, while *Culex sitiens* is rare. *Aedes pseudo-scutellaris* is the principal vector and showed a natural infection rate of 50% in certain localities. *Culex fatigans* is thought to be an important vector in the houses. The hyperendemicity of filariasis in Tahiti and the neighbouring islands is attributable to their geographical position, the mode of life of the population and the abundance and high infectivity of the vector. J.J.C.B.

(145i) Lagrange has examined the anthelmintic action of methyl violet and dipharsine on *Icosiella neglecta*, a filarial parasite of the frog. Methyl violet is not without danger for its use is followed by pulmonary oedema; dipharsine appears to have some lethal action against the parasites. P.A.C.

(145j) Metianu reports on a haemorrhagic dermatitis of parasitic origin in cattle which appears to have a wide distribution in Rumania, and was observed in 3% of 410 animals examined. The lesions which are apparently caused by *Parafilaria bovicola* consist of nodules

about the size of a hazel-nut, usually 1 to 10 in number, situated most frequently on the neck, fore-leg and dorsal region of the animal. These become haemorrhagic and a small aperture, 0.5-1.0 mm. in diameter, appears at the tip of the nodule, through which the anterior end of the female worm protrudes for egg deposition. The eggs hatch out soon after they are deposited and the larvae are probably picked up by dipterous insects and develop in them. The author believes that the condition described by Faure in cattle in Morocco and attributed to *Setaria haemorrhagica* was in reality caused by *Parafilaria tovicola*. He describes and illustrates the morphology of this helminth and its larvae. J.-J.-C.B.

(145k) Chabaud describes a larval nematode from the peritoneum of *Zamenis algirus*, which he believes to be the infective stage of *Metathelazia zorillae*. It had been classified among the species of the genus *Hartertia* but morphological and biological considerations make this classification an unnatural one. P.A.C.

(145l) Chabaud & Campana describe *Avioserpens galliardi* n.sp. from the oesophagus of *Egretta garzetta* in the Pyrenees. Cloacal papillae are absent while the female has an elongated oesophagus. Species of *Cyclops* appear to be suitable vectors. P.A.C.

(145m) Chabaud & Campana describe *Synhimantus equispiculatus* var. *spinulatus* n.var. from the gizzard of *Egretta garzetta* in the Pyrenees. Certain well defined peculiarities in these worms distinguish them from typical *S. equispiculatus*. The subgenus *Desportesius* n.subg. contains parasites of the Ardeiformes and is characterized by single female genitalia opening posteriorly near the anus. The cordons are wider in their posterior region and always have spines. The cuticle is vesiculated. The type is *S. (D.) invaginatus*, and other species are *S. brevicaudatus*, *S. sagittatus*, *S. railletii*, *S. equispiculatus* and *S. orientalis*. The genus *Synhimantus* sensu stricto should be restricted to species with a double female genital system and the vulva in the middle of the body. The cordons have the same breadth for their entire length; spines are absent. The cuticle is normal and the caudal alae of the male are not thick. They are parasites of Rapacidae. P.A.C.

(145n) Brito Gutierrez describes *Haemonchus santomei* n.sp. from the abomasum of cattle in the island of San Tomé. It was not found in sheep or goats. It can be distinguished by the size of the spicules and the position of the vulva, and by the presence of a cephalic dilatation of the cuticle. P.A.C.

(145o) Caballero y C. & Bravo Hollis describe *Langeronia macrocirra* n.g., n.sp., a trematode parasite of the intestine of a green frog, *Rana pipiens*, in Mexico. The new genus can be placed in the subfamily Pleurogeninae, but is differentiated by the position and large size of the cirrus-sac. The genital pores lie on the left half of the worm, near the left caecum. There are other smaller differentiations. P.A.C.

(145p) Angulo & Roque propose to classify coenuri on their development. There are the multilocular coenuri such as are found in the genus *Multiceps* where numerous small vesicles develop from a membrane and take on the form of a honeycomb. These vesicles are small and many are sterile. Unilocular coenuri are also found in the genus *Multiceps*. There are two types, a regular form which only rarely has diverticula and an irregular form with daughter vesicles and many diverticula. The tissues in which the coenuri develop may have an important bearing on the type. P.A.C.

(145q) Fain & Ramée list the helminth parasites found among the bovines on the mountainous plateau of Ruanda-Urundi. Cestodes found were *Moniezia expansa* and two cysticerci. There were three trematodes, *Fasciola gigantica*, *Cotylophoron cotylophorum*, and an unidentified species of *Carmyerius*. There were seven nematodes; a description is given of one of them, believed to be *Parafilaria multipapillosa*, which occurred in a small haemorrhagic growth on the skin. P.A.C.

(145r) Numerous microfilariae were found in the heart blood of *Caccabis* [= *Alectoris*] *rufa*. They approach in structure the microfilariae of *Lemdana marthae*, which have already been described from species of *Caccabis*. P.A.C.

146—Annales des Sciences Naturelles. Zoologie.

- a. NIGON, V., 1949.—"Modalités de la reproduction et déterminisme du sexe chez quelques nématodes libres." 11e Série, 11, 1-132. [English summary pp. 121-122.]

(146a) Nigon worked on the types of reproduction and sex determination in five free-living species of nematodes which he cultured on a standard non-sterile medium frequently subcultured. *Rhabditis strongyloides* and *Panagrolaimus rigidus* are both sex-differentiated species; the former has 22 chromosomes in the female and 21 in the male, while the latter has eight in both male and female with no recognisable sex-chromosome. *Rhabditis dolichura* and *R. elegans*, both self-fertilizing hermaphrodites, when cultured below 22°C. produce 0.002% males, but when males and hermaphrodites are crossed up to 30% males are produced. Hermaphrodites possess twelve chromosomes in both oogenesis and spermatogenesis, though males have eleven. *R. elegans* cultured between 23°C. and 25°C. exhibits anomalies in meiosis leading to polysomic individuals in the following generation. Results suggest that there are feminizing factors in heterochromosomes and masculinizing factors in autosomes with perhaps another masculinizing factor in the cytoplasm. *R. belari* exhibits pseudogamy, i.e. development of the eggs needs activation by sperm penetration. Some eggs give rise to males and females after two reduction divisions and a fusion of pronuclei, whilst others produce females only from diploid female pronuclei, the sperm remaining inert. In these pseudogamous eggs disjunction of bivalents may occur at any time. The proportion of males produced decreases as the females become older. Increase of temperature, growth on used media or the use of an extract from used media, cause further decrease in the proportion of males produced by females so treated. *R. belari* has 20 chromosomes in both sexes. Three independent phases can be recognized in sexual morphogenesis of *Rhabditis*: formation of sexual apparatus, multiplication of primordial germ cells and gamete differentiation. Sex differentiation of the germinative cell first appears at the end of the pachytene stage. Spermatogenesis shows a more rapid succession of nuclear stages and a slower growth of cytoplasm. There is an early critical phase in oogenesis during which the inhibitory effect of bad conditions in the medium, ageing of the female or genetical factors may show their effect. Sterility genes in *R. strongyloides* and *P. rigidus* show their effect rapidly after a few inbred generations. It is considered that the functional hermaphrodites of *R. elegans* are intersexes. *R. belari* is a *nomen novum* for *R. monhystra* Cobb, 1893, nec Bütschli, 1879. J.B.G.

147—Annales de la Société Belge de Médecine Tropicale.

- a. LAGRANGE, E., 1949.—"Essais de traitement des filarioses à *Loa-loa* et *O. volvulus* par le diéthylcarbazine chl." 29 (1), 19-22. [Flemish summary p. 22.]
- b. SCHWETZ, J., 1949.—"Sur une nouvelle classification des planorbes du Congo Belge. Resp. de l'Afrique éthiopienne." 29 (1), 37-65. [Flemish summary p. 61.]
- c. SCHWETZ, J., 1949.—"Note préliminaire sur le rôle probable joué par toutes les variétés des planorbes congolais, resp. de l'Afrique éthiopienne, dans la transmission de *Schistosoma mansoni* (bilharziose intestinale)." 29 (1), 67-71. [Flemish summary p. 71.]
- d. WANSON, M., 1949.—"Essai de traitement curatif de la filariose à *Loa-loa* et de la filariose apériodique par les dérivés de la pipérazine." 29 (1), 73-80. [Flemish summary p. 80.]
- e. WANSON, M., 1949.—"L'hétrazan dans la période d'invasion de l'onchocercose." 29 (1), 85-89. [Flemish summary p. 89.]
- f. CHARDOME, M. & PEEL, E., 1949.—"La répartition des filaires dans la région de Coquilhatville et la transmission de *Dipetalonema streptocerca* par *Culicoides grahami*." 29 (2), 99-119. [Flemish summary p. 116.]
- g. HENRARD, C. & PEEL, E., 1949.—"*Culicoides grahami* Austen. Vecteur de *Dipetalonema streptocerca* et non de *Acanthocheilonema perstans*." 29 (2), 127-143. [Flemish summary p. 142.]

- h. RODHAIN, J., 1949.—"Considérations sur le rôle des microfilaires dans la pathogénie des filarioses." 29 (2), 177-190. [Flemish summary p. 188.]
 i. WANSON, M. & PEEL, E., 1949.—"Note sur le développement partiel d'*Acanthocheilonema perstans* Manson chez divers culicidés africains." 29 (2), 213-222. [Flemish summary p. 222.]

(147a) Lagrange records the results of hetrazan treatment on five patients, three of whom were suffering from loiasis and two from onchocerciasis. Clinical cures were obtained in every case but the evidence that the adult worms were killed was inconclusive.

J.J.C.B.

(147b) On the basis of a careful study of large collections of material, Schwetz proposes a new classification of the planorbidids of the Belgian Congo. This is concerned, not with minute forms such as *Gyraulus* and *Segmentina*, but with the larger forms which Thiele in 1931 divided into two groups, *Biomphalaria* (medium-sized more or less globular shells) and *Afroplanorbis* (large flattened shells). Under the new classification the name *Afroplanorbis* is discarded and all the larger forms from the Belgian Congo (and also of the Ethiopian region) are treated, not as species, but as varieties of the subgenus *Biomphalaria*, of which the earliest type described is *Planorbis alexandrinus* Ehrenberg, 1831. Four varieties only are recognized and are designated as follows: (i) *Biomphalaria alexandrina* var. *pfeifferi* (Krauss, 1948); (ii) *B. alexandrina* var. *tanganyicensis* (E. A. Smith, 1881); (iii) *B. alexandrina* var. *stanleyi* (E. A. Smith, 1888); (iv) *B. alexandrina* var. *choanomphala* (von Martens, 1879).

J.J.C.B.

(147c) Schwetz records the results of a preliminary investigation of the role of different varieties of *Biomphalaria* [see preceding abstract for nomenclature] in the transmission of *Schistosoma mansoni*. In the Lubilash region, specimens of *B. alexandrina* var. *pfeifferi* collected in three different localities were found naturally infected (presumably with *S. mansoni*) in percentages of 6.6, 16.6 and 25 respectively. This variety was also found infected (2.4%) in the River Fwa region. At Albertville one specimen (1.6%) of *B. alexandrina* var. *tanganyicensis* was found infected, and at Usumbura 2.5% of this variety and 2% of *B.a.* var. *pfeifferi* were positive. At Costermansville 55% (11 out of 20) of *B.a.* var. *stanleyi* were found infected with schistosomes. Mention is made in each instance of the occurrence or otherwise of other kinds of cercarial infections.

J.J.C.B.

(147d) Forty-six loiasis patients (10 Europeans and 36 Africans) were treated with hetrazan (6 mgm. per kg. each day for 10 days). Forty-eight hours after the beginning of treatment the peripheral blood was free of microfilariae in every instance, and oedema diminished in duration and intensity to disappear completely towards the third or fourth day.

J.J.C.B.

(147e) Wanson describes the course of an *Onchocerca volvulus* infection in a European aged 43 years who had been bitten by three *Simulium damnosum*, one of which was found on dissection to contain infective larvae. Clinically the infection manifested itself mainly in skin abnormalities, pruritus and pigmentation, but loss of weight, insomnia and lassitude were also experienced. Ninety-six days after the infective bites, treatment with hetrazan was initiated (150 mgm. per day for 14 days) which resulted in complete cure.

J.J.C.B.

(147f) Chardome & Peel examined more than a quarter of the population in Coquilhatville territory for evidence of filarial infections, with the object of determining their geographical distribution. Skin scarification was employed, which not only revealed the microfilariae of *Onchocerca volvulus* and *Dipetalonema streptocerca*, but also those of *Loa loa*, *Acanthocheilonema perstans* and *Wuchereria bancrofti*, by means of thick blood films made from the part scarified. Nearly 8,000 were examined, especially in the interior region which included nearly the whole populations of 72 villages. In most of the villages of the interior *Mf. streptocerca* and *Mf. perstans* were present and also *Mf. loa*, but *Mf. volvulus* was rare. Along the Congo River *Mf. streptocerca* was almost completely absent in the indigenous population. Of 687 children under 10 years old, 62.59% were found

infected with at least one species of microfilaria. The incubation period of *D. streptocerca* was concluded to be between three and four months, and of *A. perstans* between nine and twelve months. *Mf. streptocerca* was found in two Europeans resident in the country for seven months and fifteen years respectively. Feeding experiments with *Culicoides grahami* showed that there was a selectivity for *Mf. streptocerca* by this insect when *Mf. perstans* was also present in the blood of the host. Further experiments revealed that *Mf. streptocerca* would complete its larval development in the body of *C. grahami* in seven days and grow to an infective larva 574 μ long by 21 μ . Feeding experiments with *Anopheles*, *Culex*, *Mansonioides* and *Aedes* gave negative results. J.J.C.B.

(147g) Summarizing available data concerning the occurrence of *Dipetalonema streptocerca*, Henrard & Peel conclude that it has a wide distribution in Belgian Congo, equal to that of *Loa loa* and *Onchocerca volvulus* but less than that of *Acanthocheilonema perstans*, which is ubiquitous. *D. streptocerca* occurs in foci of infection and is generally associated with *A. perstans*, but *A. perstans* may occur by itself. In foci where the two species are concurrent *A. perstans* usually predominates, although some carriers may harbour only one species. Clinical manifestations have not been observed in connection with *D. streptocerca*. Gombe-Masaka, a focus containing *D. streptocerca*, *A. perstans* and *Loa loa*, was chosen for further experiments with *Culicoides grahami* which is the most abundant species, *C. inornatipennis* comprising only 3% of the total catches. Preliminary research with four natives, each harbouring both *Mf. streptocerca* in the skin and *Mf. perstans* in the blood, showed that *C. grahami* picked up only *Mf. streptocerca* when given an infective blood meal on these carriers. Using 261 *C. grahami*, an experimental infection rate of 23% was obtained which included various stages of development of *D. streptocerca* from the early larvae in the thoracic muscles up to the infective stage. A natural infection rate of 1.2% was found in 737 dissected flies. These results seem to invalidate the findings of Dyce Sharp who reported in 1928 that *Culicoides austeni* was vector of *A. perstans*, and reasons are adduced to show that the larval development described by Dyce Sharp was not that of *A. perstans*. Henrard & Peel failed to infect *Simulium damnosum* with *A. perstans* and *D. streptocerca*. Developing larval stages of a nematode were found in *Sarcophylla penetrans* which, it is considered, might possibly be a vector of *A. perstans*. J.J.C.B.

(147h) Rodhain refers to his views expressed in 1938 [for abstract see Helm. Abs., 7, No. 723a] and to the theory of O'Connor and of Lane about the role of the microfilariae. The reactions which follow the use of the new filaricidal compounds are due either to the rapid destruction of the microfilariae or to their gradual disappearance, following the death of the parent worms or their temporary sterilization. The mass destruction of microfilariae by hetrazan or Bayer 205 [=antrypol] results in the production of allergic phenomena of various kinds which may sometimes be serious. Antimony preparations and some arsenicals, which are lethal to macrofilariae and thus bring about a gradual disappearance of microfilariae, do not as a rule cause reactions other than those provoked by the cures themselves. The death of the females is manifested by a local reaction around the dead worms. The facts prove the presence of antigens in the microfilariae. When once the body has been sensitized by the antigens from the adult worms, the liberation of antigens from the dead microfilariae provokes local reactions and these may vary in the lymph vessels, lymph nodes and the cutis of the skin. P.L.L.R.

(147i) Wanson & Peel record the results of experimental infections of laboratory-bred mosquitoes to determine the vector of *Acanthocheilonema perstans*. Partial development was observed in *Anopheles paludis* and *Anopheles gambiae* during the cold season. No development took place during the hot season in *Culex fatigans*, *C. perfidiosus*, *C. nebulosus*, *Aedes aegypti*, *Anopheles gambiae* and *Anopheles paludis*, but in *Anopheles moucheti* there was development to the "sausage" stage in a single specimen out of 28 which were given an infective feed. J.J.C.B.

148—Annals of Applied Biology.

- a. PETERS, B. G. & FENWICK, D. W., 1949.—"Field trials with D-D mixture against potato-root eelworm." 36 (3), 364-382.

(148a) Peters & Fenwick give the results of field-scale trials of D-D mixture against potato-root eelworm at seven 2-acre sites in England in 1946 to 1947. Apart from a spring-injected pilot trial, sites were autumn-injected at rates of 0, 200, 400 and 800 lb. per acre, at 4 or 8 inches deep, with or without subsequent rolling. They report significant increases in yield at some sites, and significant decreases in eelworm population at four weeks after injection. However after a subsequent potato crop the eelworm populations were slightly higher on the treated plots than on the controls. Blackland soils showed poorer responses than silts or sands. There is some evidence of both nematocidal and phytocidal effects prolonged into the spring, and evidence also of taint in tubers grown in injected soil. B.G.P.

149—Annals of Tropical Medicine and Parasitology.

- a. KERSHAW, W. E., 1949.—"Observations on *Litomosoides carinii* (Travassos, 1919) Chandler, 1931. III.—The first-stage larva in the peripheral circulation; with a statistical analysis by R. L. Plackett." 43 (2), 238-260.

(149a) In these further observations on *Litomosoides carinii* in the cotton-rat, the authors consider (i) the factors which influence the persistence of the larvae in the peripheral circulation, (ii) the accuracy of various methods of counting these larvae, (iii) the normal course of an untreated infection, (iv) the reaction of the host to the adult worm—on two occasions live larvae and live adults were found in the pleura some time after the larvae had disappeared from the peripheral blood, (v) factors influencing the larvae in the absence of adults, and (vi) factors influencing the larvae in the presence of adults. The prepatent interval after exposure to infection varies from 50-60 days but if only one female matures it may be 70 days. The peak of the larvae in the peripheral blood is attained in four or five months and the larvae usually disappear in nine months. Variation in the counts of larvae in the peripheral circulation is shown to be related to extremes of external temperature, a rise being associated with an increased count. The irregular appearances of the larvae in the peripheral circulation may be attributed to the existence of an unidentified functional reservoir in the circulatory system from which the larvae may spill over a threshold into the peripheral blood stream. R.T.L.

150—Annual Journal. Royal Lancashire Agricultural Society.

- a. PETERS, B. G., 1949.—"Potato root eelworm. A serious and easily-spread pest. Control measures discussed." Year 1949, pp. 23-27.

(150a) Peters summarizes a popular account of the problem of controlling potato-root eelworm, which was given at an Arable Conference at St. Helens in January, 1949. Control is discussed in terms of changes in the eelworm population. B.G.P.

151—Antiseptic. Madras.

- a. AYYANGAR, M. C. R., 1949.—"Thread worm infestation." 46 (5), 351-356.

152—Archives de l'Institut Pasteur de la Martinique.

- a. MONTESTRUC, E., 1949.—"Un traitement pratique de la pseudo myase rampante." 2 (1), 24-26.

(152a) Although pseudomyiasis is far from rare in children in Martinique its cause has not been determined, but from the frequency of hookworm in cats *Ancylostoma braziliense* is suspected. Local application of ethyl chloride gave good results, but where this was unobtainable the application of an ice "cube" (about 5 cm. × 4 cm. × 2 cm.) for ten minutes on two successive days caused the symptoms to disappear in several cases. R.T.L.

153—Archives of Neurology and Psychiatry. Chicago.

- a. STEPIEN, L. & CHORÓBSKI, J., 1949.—"Cysticercosis cerebri and its operative treatment." 61 (5), 499-527.

154—Archivio Italiano di Urologia.

- a. JUNGANO, G., 1949.—"Osservazioni anatomico-cliniche a proposito di un caso di tubercolosi e di cisti da echinococco del rene." 23 (2), 83-106.

155—Archivio di Radiologia.

- a. GRILLI, A., 1949.—"Il valore dell'indagine stratigrafica nella diagnosi di cisti di echinococco polmonare (riassunto)." Year 1947, 23 (1), 98.

156—Australian Journal of Scientific Research. Series B, Biological Sciences.

- a. ROGERS, W. P., 1949.—"On the relative importance of aerobic metabolism in small nematode parasites of the alimentary tract. I. Oxygen tensions in the normal environment of the parasites." 2 (2), 157-165.
b. ROGERS, W. P., 1949.—"On the relative importance of aerobic metabolism in small nematode parasites of the alimentary tract. II. The utilization of oxygen at low partial pressures by small nematode parasites of the alimentary tract." 2 (2), 166-174.

(156a) In order to determine the availability of oxygen *in vivo* to *Nippostrongylus muris*, *Nematodirus filicollis*, *N. spathiger* and *Haemonchus contortus*, Rogers has determined the oxygen tensions in gut contents close to the mucosa in the alimentary tracts of the rat and sheep. The determinations were made electrometrically in anaesthetized animals in which the alimentary circulation was intact. Oxygen tensions in the small intestine of the rat were found to vary from 30.2 to 8.9 mm. of mercury in the fifteen animals examined; these readings were usually lower as distances from the pylorus were increased. Oxygen was always present in the contents of the small intestine of the sheep close to the mucosa, but in smaller amounts than those found under similar conditions in the rat. The oxygen tensions very close to the intestinal mucosa in rats were influenced by the nature of the gas mixture inspired by the animals. W.P.R.

(156b) Rogers found that the oxygen consumption-oxygen tension curves of *Nippostrongylus muris*, *Haemonchus contortus*, *Nematodirus spathiger* and *N. filicollis* followed a hyperbolic course. All the parasites were capable of utilizing oxygen for respiratory purposes, even at partial pressures of oxygen less than 5 mm. of mercury. The rat parasite used relatively more oxygen at low partial pressures than the sheep parasites. The results indicate that *Nippostrongylus muris* would be able to respire actively at the partial pressures of oxygen found in the intestinal contents of the rat host. The respiration *in vivo* of *Nematodirus* spp. and *Haemonchus contortus* would be relatively small compared to that of the rat parasite. W.P.R.

157—Australian and New Zealand Journal of Surgery.

- a. FOSTER, P. S., 1949.—"Hydatid cyst of the brain." 18 (3), 228.

158—Australian Veterinary Journal.

- a. DURIE, P. H., 1949.—"A preliminary note on the life cycle of *Paramphistomum cotylophorum* (Fischöder, 1901), and *P. cervi* (Schränk, 1790) (Trematoda: Paramphistomatidae)." 25 (9), 209.
b. BEARUP, A. J., 1949.—"Examination of wild rats for *Trichinella spiralis*." 25 (10), 229-230.

(158a) Durie states that *Paramphistomum* [= *Cotylophoron*] *cotylophorum* and *P. cervi* are common and widely distributed parasites of cattle in Australia. Cercariae believed to be those of *P. cotylophorum* and *P. cervi* were found in *Segnitilia alphena* (Iredale, 1943) and *Glyptaniscus gilberti* (Dunker, 1848), respectively. Encysted cercariae were fed to two lambs. On post-mortem examination mature flukes of both species were recovered from the rumen. Natural infections of snail populations may be as high as 40%. S.W.

(158b) None of 200 rats caught in the city of Sydney showed any evidence of infection with *Trichinella spiralis*. It is recalled that no indigenous cases of trichinellosis have been reported in Australia although some have occurred in immigrants presumably infected overseas. R.T.L.

159—Beretning om Landboforeningernes Virksomhed for Planteavl en paa Sjaelland.

- a. FREDERIKSEN, H., 1949.—“Undersøgelser og Forsøg vedrørende Kloveraalens Udbredelse, Skadevirkning, Smitteforhold og Bekaempelse.” Year 1948, pp. 198–214.

(159a) The distribution of clover stem eelworm in Denmark was investigated during 1948 partly along roads chosen at random, partly by systematic investigations in a few parishes. By the first-mentioned method 1,543 leys were investigated, 1,284 in Jutland and the remainder in Sjaelland, Fyn and Lolland. The severity of attack was estimated as none, slight, severe or devastating. Of leys where red clover was the only leguminous plant, 68% had no attacks. Of leys with both red and white clover, 70% had no attacks in red clover and 60% had none in white clover. Very few of these leys had devastating attacks. Of leys with white clover as the only leguminous plant, 22% had no attacks and 5% had devastating attacks. Of lucerne leys, 13% were attacked. A marked correlation was observed between the age of the ley and the severity of the attack. Attacks were more common on heavy soils than on sandy soils. Investigations of seed samples showed that a considerable part of white clover seed sold as belonging to resistant strains was not genuine and was attacked by stem eelworm. Experiments showed that cultivation in soil to which infected plant material had been brought was a rapid and good method to determine the resistance of clover and lucerne strains to different strains of stem eelworm. S.B.

160—Bergcultures. Batavia.

- a. VECHT, J. VAN DER, 1949.—“Biologische specialisatie bij galvormende wortelaaltjes. Een verzoek om medewerking.” 18 (2), 39, 41.

(160a) Van der Vecht compares the polyphagous *Heterodera marioni* (which is widespread in numerous crops in Java and Sumatra, both in the plains and in the hills), with *H. schachtii* as it was formerly regarded: a species with several biological strains adapted to different ranges of host plants. These strains have since been recognized as true species. It is less easy to recognize strains in *H. marioni*, but the work of Bally & Reydon and of de Fluiter brought out some evidence for them, and recently the Division of Nematology of the U.S. Department of Agriculture at Beltsville has found evidence that “*H. marioni*” represents a complex of races or possibly even of species. Van der Vecht appeals for material, with full details, to be sent in to the Plant Pathology Institute at Buitenzorg, for transmission to Beltsville. B.G.P.

161—Berliner und Münchener Tierärztliche Wochenschrift.

- a. DIETER, 1949.—“Parasitär bedingte Allergie als Kolikursache bei einem Pferd.” Year 1949, No. 5, p. 54.
b. BORCHERT, A. & TIMM, W., 1949.—“Beobachtungen über die Lungenwurmkrankheit des Schafes und Untersuchungen über die Überwinterung der Larven von *Dictyocaulus filaria*.” Year 1949, No. 12, pp. 169–173.

(161a) Post-mortem examination of a horse, which had been slaughtered after prolonged diarrhoea, increasing tympany and severe attacks of colic, revealed about 120 ascarids (most of which were dead and decomposing) in the small intestine; no worms were found in either colon or rectum although the mucous membrane of the rectum was so swollen that its lumen was practically blocked. The symptoms are ascribed to an allergic reaction set up by the decomposition products of the ascarids. Dieter points out that allergic symptoms are increasingly met with in general practice and suggests the possibility of using allergic reactions in the control of intestinal parasites. A.E.F.

(161b) Borchert & Timm have carried out systematic faecal examinations of 53 sheep from a flock of 200 severely infected with *Dictyocaulus filaria* in order to determine the value of certain preventive measures. The sheep were examined five times between the end of September 1948 and the end of March 1949 and the results are tabulated. After the sheep had been housed for the winter the heavily infected straw bed was replaced by clean dry straw, the feeding troughs and walls were thoroughly cleaned and the walls whitewashed. These measures led to very great reduction in larval counts. Later, when winter feed failed, the sheep went out to pasture unusually early; this led to reinfection, straw again became infected and larval counts increased. An experiment to test overwintering of *D. filaria* larvae on pasture was also made. Grass samples taken in May from a meadow which had not been used as pasture since early December contained viable larvae: these were fed to a four-weeks-old kid and produced *D. filaria* infection. Although the winter had been generally mild, frost occurred on 70 days and in early March there was a 12-day period of unbroken frost (temperatures between $-1.8^{\circ}\text{C}.$ and $-17.2^{\circ}\text{C}.$). Similar experiments with *Haemonchus contortus* larvae proved negative. Borchert & Timm do not, however, think that the danger to lambs from larvae surviving on pasture is very great as the number likely to overwinter is very small. The chief danger to lambs is the infected sheep. A.E.F.

162—Bi-Monthly Bulletin. North Dakota Agricultural Experiment Station.

- a. EVELETH, D. F. & GOLDSBY, A. I., 1949.—“Accidents in sheep worming.” 11 (3), 104-105.

163—Boletín Epidemiológico. Mexico.

- a. RUIZ REYES, F., 1949.—“Estudio epidemiológico sobre la oncocercosis en el Estado de Veracruz.” 13 (1), 1-20.
b. ANON., 1949.—“Resultado de una exploración sobre triquinosis en chorizos.” 13 (1), 21-22.

(163a) Ruiz Reyes has studied the distribution of onchocerciasis in the State of Veracruz, and concludes that there is considerable spread of the parasite by population movements. Labourers who cut sugarcane and harvest coffee are an important source of spread, since they move about the country following their work, and are often infected. Commercial travel, tourism and the great fair which brings 15,000 visitors annually on 3rd May to the sanctuary of Otatitlán are all shown to be important epidemiologically. Control measures directed against these carriers and against the *Simulium* vectors are outlined. E.M.S.

(163b) The laboratory of helminthology of the Instituto de Salubridad y Enfermedades Tropicales announces the results of a systematic examination of samples of commercial pork sausage sent in by various hygiene centres. As the sausages were usually hard, so that direct examination was unsatisfactory, each sample was fed for several days to a pair of rats, which were sacrificed two months later and examined for trichinae. Infected sausage was received only from two places, Ciudad Las Casas, Chis., and León, Gto. E.M.S.

164—Boletín de la Oficina Sanitaria Panamericana.

- a. NEGHME R., A., FAIGUENBAUM A., J., PILOTTI A., M. & SILVA CAMPOS, R., 1949.—“Algunos aspectos epidemiológicos de la hidatidosis humana en Chile.” 28 (5), 469-477. [English summary p. 477.]
b. CRIVELLARI, C. A. & MENDY, R. M., 1949.—“Profilaxis de la hidatidosis en la República Argentina.” 28 (6), 554-557. [English summary pp. 556-557.]
c. TORRES MUÑOZ, A., 1949.—“Control de oncocercosis.” 28 (6), 558-568. [English summary p. 568.]

(164a) [This paper has already appeared in *Rev. chil. Hig. Med. prev.*, Year 1948, 10 (4), 197-207.]

(164b) In the Argentine the Ministries of Public Health and Agriculture have commenced in Patagonia an eradication campaign in compliance with Law No. 12732 on “Compulsory Hydatidosis Prophylaxis”. Three principal foci of infection were determined

in (i) the Province of Buenos Aires, (ii) the pre-Cordillera region of the territories of Neuquen, Rio Negro and Chubut, and the military zone Comodoro Rivadavia, (iii) the Argentine Littoral comprising the southern part of the Province of Corrientes and the Province of Entre Rios. Infection was closely related to the incidence in animals, especially in sheep in which infection up to 100% was observed in the territories of Neuquen, Rio Negro and Chubut. In Patagonia the educational programme included the use of radio and cinema films, while in the schools plastic models replaced posters. Dogs were given arecolin hydrobromide and an antiparasitic bath containing 5% creolin. In the slaughter-houses, viscera were boiled or dumped in dog-proof pits.

R.T.L.

(164c) The control of onchocerciasis is difficult on account of the many factors involved. These include the surgical removal of the nodules from infected persons, destruction of the microfilariae by hetrazan, mechanical protective measures and the use of repellents. Migration, both for labour and religious purposes, should be controlled and intensive propaganda should be undertaken.

R.T.L.

165—British Journal of Pharmacology and Chemotherapy.

- a. BALDWIN, E. & MOYLE, V., 1949.—“A contribution to the physiology and pharmacology of *Ascaris lumbricoides* from the pig.” 4 (2), 145–152.

(165a) Baldwin & Moyle have determined kymographically the effect of a number of substances on the activity of exposed muscle strips of *Ascaris lumbricoides*. Acetylcholine at a concentration of 10^{-6} stimulated the muscle but the effect was not augmented by pre-treatment with eserine (10^{-3}). Choline (10^{-4}), nicotine (10^{-7}), and barium ions (10^{-4}) caused stimulation which was antagonized by tubocurarine (10^{-4}), strychnine (10^{-3}) and cocaine (10^{-4}). The stimulating action of nicotine (10^{-7}) was not reversed when the concentration of the drug was increased to 10^{-3} . Atropine (10^{-4}) had no action on the stimulation produced by acetylcholine (10^{-6}) or “2268F” (10^{-5}). [“2268F” is pharmacologically similar to natural muscarine in its effects on mammalian tissue.] Thus acetylcholine, in its action on the *Ascaris* muscle preparations, did not exhibit fully its nicotine-like and muscarine-like actions. Adrenalin, morphine, pilocarpine, strychnine, atropine and other substances which are normally pharmacologically active, had no direct action on *Ascaris* muscle. By comparing the results obtained from exposed muscle strips with those from preparations protected by cuticle, the authors show that the cuticle was impermeable to acetylcholine, choline and cocaine. The importance of using nematode tissues rather than those of earthworms for testing anthelmintics is emphasized.

W.P.R.

166—British Medical Journal.

- a. TIDY, H., 1949.—“Ayerza's disease, silicosis, and pulmonary bilharziasis.” Year 1949, 1 (4613), 977–978.
- b. SILVER, C. P., 1949.—“Hydatid cyst and cirrhosis.” Year 1949, 2 (4624), 423.
- c. ANON., 1949.—“Threadworms in infants.” [Questions & Answers.] Year 1949, 2 (4628), 661.
- d. STEWART, I. S., 1949.—“Human infestation with *Trichostrongylus* in South Persia.” Year 1949, 2 (4630), 737–738.
- e. CORRIGAN, F. L., 1949.—“A case of pulmonary strongyloidiasis.” Year 1949, 2 (4630), 738–739.
- f. ANON., 1949.—“*Trichostrongylus* and *Strongyloides*.” [Annotation.] Year 1949, 2 (4631), 803–804.
- g. MARSH, F., 1949.—“*Trichostrongylus* infestation in South Persia.” [Correspondence.] Year 1949, 2 (4634), 983.
- h. MONTEIRO, E. S., 1949.—“Identification of microfilaria.” [Correspondence.] Year 1949, 2 (4636), 1115.
- i. HAMILTON, D., 1949.—“Infestation with *Trichostrongylus*.” [Correspondence.] Year 1949, 2 (4640), 1356.

(166a) In Brazil, Ayerza's disease is due to silicosis occurring at high altitudes, but the possibility of pulmonary bilharziasis being a main or contributory factor should be borne in mind although it has not yet been reported in Brazil.

R.T.L.

(166d) Routine investigations of 30,000 labourers employed by the Anglo-Iranian Oil Company at their refinery on the arid Abadan Island in South Persia suggested that one-quarter were infected with hookworm, but the climatic conditions were the reverse of those in which ancylostomiasis usually occurs. Grave anaemia was infrequent and anthelmintic treatment consistently unsuccessful. Further study led to the recognition that two distinct types of eggs had been diagnosed as those of hookworm. Of 500 stool specimens 16 only contained hookworm eggs while 324, i.e. 70%, contained trichostrongyle eggs. Few post-mortem examinations were obtainable as the population was chiefly Moslem, but in the necropsies made no adults were recovered. Of 40 healthy and symptomless schoolchildren between 10 and 12 years of age, 31 were passing trichostrongyle eggs. *Ascaris* was found in 25% of the persons examined, and other helminths were distinctly rare.

R.T.L.

(166e) In a case with frequent attacks of asthma and a pleural effusion, which had been treated for twelve months for pulmonary tuberculosis but in which the sputum was negative for tubercle bacilli, there was an eosinophilia of 30%. This led to the finding of *Strongyloides stercoralis* larvae in the stools. Gentian violet given in capsules and intravenously was without effect on the clinical condition or on the larvae. Following a dose of 9.0 gm. of hexylresorcinol the majority of the larvae passed in the stools were dead, and living specimens were difficult to find; the asthmatic attacks ceased for about ten days, but thereafter the larvae again became numerous and the asthmatic attacks recurred.

R.T.L.

(166g) Marsh controverts Stewart's statement [see above No. 166d] regarding the incidence of helminths in inhabitants of South Persia and draws attention to his Annual Medical Report of the Anglo-Iranian Oil Company for 1933 in which he described eleven helminths common in the indigenous population. Conditions in Abadan are, in his view, favourable for the spread of ancylostomiasis but conditions in this town are not representative of the rest of South Persia.

R.T.L.

(166h) A drop of blood is placed on a slide on which a drop of saturated alcoholic solution of brilliant cresyl blue has been allowed to dry. It is then covered with a cover-slip and sealed with vaseline. The granules in the microfilaria, which survives for about five minutes, are distinctly stained and facilitate identification.

R.T.L.

(166i) Hamilton suspects that a light *Trichostrongylus* infection may be common among the Mauritian recruits in the British Army. The ova in the faeces were scanty and fully segmented. There were abdominal symptoms but no worms were recovered after treatment with tetrachlorethylene and oil of chenopodium.

R.T.L.

167—Bulletin de l'Académie National de Médecine. Paris.

- a. MATTEL, C., TRISTANI, M., BARBE, A. & ACQUAVIVA, M., 1949.—"Les localisations habituelles des abcès pulmonaires." 3e Série, 133 (3/4), 77-78.
- b. GALLIARD, H. & MILLE, R., 1949.—"Un nouveau médicament antilarrien: le 1-diéthyl-carbamyl-4-méthyl-pipérazine, expérimenté à Tahiti." 3e Série, 133 (3/4), 83, 85-87, 84. [Discussion p. 84.]

(167b) Filarial lymphangitis due to *Wuchereria bancrofti* var. *pacifica* is highly endemic in Tahiti. About 42% of the population are infected. This is due partly to the habits of the people and partly to the aggressiveness and susceptibility of the vector, *Stegomyia scutellaris pseudoscutellaris*, of which 40% are naturally infected. Hetrazan given orally in doses of 2 mgm. three times daily for seven days is very efficacious and is well tolerated. Sterilization of the infection followed in 87.5% of 96 cases treated. Four months later there was a slight recurrence of microfilariae in 40 cases and a heavier recurrence in 12 cases. No degenerated microfilariae were found in the blood. Anorexia, fever, pruritus, headache, joint pains and general malaise were frequent symptoms. Torpid ulcers cicatrized quickly. Synthetic antihistamines (benadryl, neoantergan) rapidly relieved lymphangitis attacks which in some instances accompanied the hetrazan medication. The drug had no effect

on cases of elephantiasis. [Portions of the text of this article have accidentally become partly incorporated in an article by Th. Alajouanine entitled "Nouvel aspect de la syphilis nerveuse d'après l'étude comparative du liquide céphalique et du liquide rachidien". The last line only of p.84 should follow the last line on p.83. The whole of pp. 85, 86 and 87 should then follow. The text is then continued on p. 84 and ends at "(applaudissements)".]

R.T.L.

168—Bulletin de l'Académie Vétérinaire de France.

- a. MAROTEL & PIERRON, 1949.—"Une maladie parasitaire rarement diagnostiquée: la strongyloïdose équine." 22 (4), 178-181.

(168a) Three horses with symptoms of colic and frequent rubbing of the chest were found to have numbers of nematode embryos in their faeces. These were diagnosed as *Strongyloides* and differentiated from those of *Habronema*. Six days after treatment with phenothiazine the colic and rubbing disappeared. Strongyloides infection in the horse had not been seen heretofore in Holland or France.

R.T.L.

169—Bulletin. Connecticut Agricultural Experiment Station.

- a. ANDERSON, P. J., 1949.—"Controlling tobacco diseases." No. 527, 55 pp.

(169a) Anderson deals briefly, on pages 18-21, with brown root-rot of tobacco, probably caused primarily by *Pratylenchus* spp. In some years this is the most damaging field disease of this crop in the State. The aerial symptoms, stunting and wilting, are similar to those of fungal root-rots, and roots must be examined to establish the cause. Control consists in not growing tobacco following hay, maize or forage crops, and in fumigating the soil with ethylene dibromide or D-D mixture at 30 gal. per acre (of the 10% ethylene dibromide solution).

B.G.P.

170—Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris.

- a. PIÉRI, J., 1949.—"A propos de distomatose hépatique." 4e Série, 65 (3/4), 95-96.
b. SÉDALLIAN, P., MARAL, R. & PERRIN, A., 1949.—"Epidémie familiale de distomatose à *Fasciola hepatica*." 4e Série, 65 (9/10), 327-333.

(170b) Five cases of fascioliasis are reported in those members of a family who had consumed water from a watercress bed contaminated by cattle. Treatment was by glucantime, the dosage varying according to the age of the patients. Death of a 66-years-old woman is attributed to latent chronic nephritis, probably aggravated by the infection, since albuminuria developed before treatment in three other patients.

E.M.S.

171—Bulletin de la Société de Pathologie Exotique.

- a. PICK, F., 1949.—"Éclosion spontanée des oeufs d'*Ascaris megalcephala* sur silico-gel." 42 (7/8), 360-362.
b. PICK, F., 1949.—"Technique de silico-gel sur lame." 42 (7/8), 363-365.
c. MARILL, F. G. & FRIESS, J., 1949.—"Essai de traitement de la bilharziose urinaire par le 3-735 RP." 42 (7/8), 365-369.
d. CANET, J. & JAHAN, P., 1949.—"Traitement de la filariose à *W. bancrofti* en Indochine par un nouveau filaricide: la 1-diéthyl-carbamyl-4-méthylpipérazine ou 3-799 R.P." 42 (7/8), 408-413. [Discussion pp. 413-414.]
e. BONNIN, H. & MORETTI, G. F., 1949.—"Le médullogramme dans l'anémie par ankylostomes." 42 (9/10), 457-461.
f. HARANT, H. & CARON, M., 1949.—"Nouvel emploi du vieux ail dans le traitement de l'oxyurose." 42 (9/10), 461-463.
g. SAUTET, J., 1949.—"Parasitisme par la *Filaria ozzardi* Manson, 1897 à l'île de la Désirade et plus spécialement à la léproserie." 42 (9/10), 463-465. [Discussion p. 465.]
h. STEFANOPOULO, G. J. & OVAZZA, M., 1949.—"L'étude expérimentale de la filariose du rat du coton (*Sigmodon hispidus*) à *Litomosoides carinii*." 42 (9/10), 498-513.

(171a) Pick finds that ova of *Parascaris equorum* hatch successfully on solid media. He brings them to the embryonated stage in Ringer's solution at 34°C. and they are then seeded on to silico-gel plates. Hatching occurs most successfully at a temperature of 34°C. and pH 7.

P.A.C.

(171c) Marill & Friess report upon trials with 3.735 RP (=Miracil) in the treatment of bilharziasis due to *Schistosoma haematobium*. Six Senegalese natives who were passing *S. haematobium* eggs in the urine were treated with 3.735 RP respectively as follows: 150 mgm. daily for 8 days; 600 mgm. for 10 days; 1,200 mgm. for 3 days; 800 mgm. for 10 days; 800 mgm. for 10 days; 800 mgm. for 5 days. No parasitocidal action was observed, but it is thought that heavier dosages than those given would be well tolerated.

J.J.C.B.

(171d) Canet & Jahan report very favourably on the results of treatment of ten agricultural workers in Tonking who were infected with *Wuchereria bancrofti* but with one exception were without clinical filariasis. The drug employed was 3.799 RP (=hetrazan), in doses of 0.3-0.4 gm. per day for 4-10 days. In eight cases a second course lasting 3-9 days at the same dose rate was given 10 days to one month after the first. Five cases received a third course lasting 4-8 days, 6-52 days after the second course. The results were rapid and constant and in every case the microfilariae completely disappeared from the peripheral blood 2-3 days after the beginning of the treatment. Three months later, with the exception of the cases receiving only one course of treatment, a re-examination of the blood still showed no microfilariae.

J.J.C.B.

(171e) In pure hookworm anaemia the bone-marrow shows an intense erythroblastic proliferation with a preponderance of basophilic cells. Megaloblasts are absent. The eosinophile reaction, whether of medullary or peripheral origin, is in inverse ratio to the duration of the infection. A study of the bone-marrow supports the views of those who believe that hookworm anaemia is due to blood destruction by the worms or their bites.

R.T.L.

(171f) Harant & Caron have devised a suppository for the treatment of oxyuriasis. The suppository for children of four to ten years of age contains 0.1 gm. ethereal extract of garlic and ten drops of tincture of eucalyptus incorporated in cacao butter. That for adults contains 0.25 gm. of ethereal extract of garlic and 20 drops of eucalyptus tincture. One suppository is used daily for five days. This is repeated three weeks later.

R.T.L.

(171g) Of 49 persons in the villages Souffleur, Bourg and Section Galet of the Island of Désirade, Guadeloupe, the average infection with microfilariae of *Mansonella ozzardi* was 32.5%, whereas of 99 inhabitants of the leper hospital, 71% were infected.

R.T.L.

(171h) Stefanopoulo & Ovazza summarize recent literature dealing with the morphology, life-cycle, vector, associated pathological anatomy and technique of experimental infection of *Litomosoides carinii*, and the use of this infection in the testing of chemotherapeutic substances.

R.T.L.

172—Bulletin of the World Health Organization.

- a. SHOUSHA, A. T., 1949.—"Schistosomiasis (bilharziasis): a world problem." 2 (1), 19-30.
- b. MEIRA, J. A., 1949.—"Schistosomiasis mansoni: a survey of its distribution in Brazil." 2 (1), 31-37.

(172a) Shousha regards schistosomiasis as one of the most widespread and important diseases of man, causing irreparable economic loss. The subject should be studied and surveyed by the experts of the World Health Organization, special emphasis being placed on mollusc control, pollution prevention, and mass treatment, and a thorough zoogeographical study of water, plant, irrigation and drainage conditions in relation to the vectors. He calls for intensive research on molluscicides and vermicides. The cases treated in Egypt between 1924 and 1945 are tabulated. It is noted that as a result of treatment the number and severity of surgical complications has been greatly reduced. Eradication by treatment is hopeless: although treatment has been established in Egypt for over 20 years there are more cases than formerly. Control by pollution prevention and propaganda is also hopeless. Destruction

of the vectors is the only technique likely to prove effective. The methods at present in use in Egypt are briefly outlined. Tables show that in Faiyûm Province the percentage of molluscs infected fell from 25% in 1942 to 2% in 1946, and in Giza Province from 39% in 1943 to 12%.

R.T.L.

(172b) Meira publishes a map showing the distribution of *Schistosoma mansoni* in Brazil and a list of 364 localities in which this infection has been determined from an examination of faeces and pathological records, including liver biopsies. Schistosomiasis mansoni is chiefly endemic in the States of Ceará, Rio Grande do Norte, Pernambuco and Alagoas in the north-east, and of Sergipe, Bahia, Espírito Santo and Minas Geraes in the east. In frequency and severity the incidence is higher in the coastal area of the north-eastern region than elsewhere. No autochthonous cases have yet been reported in the northern States of Amazonas, Pará and Acre Territory. It is recalled that a bill was presented to the Brazilian Congress in 1947 providing for the creation of a National Schistosomiasis Service in the Public Health Department of the Brazilian Ministry of Education and Health.

R.T.L.

173—California Agriculture.

- a. SERR, E. F. & DAY, L. H., 1949.—“Root-lesion nematode injury; trials under way to determine resistant or tolerant rootstocks for fruit and nut trees.” 3 (8), 3-4.

174—California Fruit and Grape Grower.

- *a. SERR, E. F. & DAY, L. H., 1949.—“Root-lesion nematodes; resistant walnut rootstocks.” 3 (7), 15-16.

175—Canadian Field-Naturalist.

- a. GREEN, H. U., 1949.—“Occurrence of *Echinococcus granulosus* in elk (*Cervus canadensis nelsoni*), Banff National Park.” 63 (5), 204-205.

(175a) The lungs of 57 out of 1,073 elk examined during 1944 to 1948 in the Banff National Park contained hydatid cysts. Green suspects coyotes as the carrier in Banff, since wolves were not observed there before 1945, although Cowan has previously reported *Echinococcus granulosus* in a wolf in Jasper.

R.T.L.

176—Canadian Journal of Comparative Medicine.

- a. MOYNIHAN, I. W. & MUSFELDT, I. W., 1949.—“A study of the incidence of trichinosis in swine in British Columbia.” 13 (9), 224-227.
- b. ROTH, H., 1949.—“Trichinosis in Arctic animals.” 13 (9), 227-228.
- c. CAMERON, T. W. M., 1949.—“Diseases carried by house mice.” 13 (10), 262-266.
- d. BLOOMFIELD, S. S., 1949.—“The toxicity of the chemical constituents of urine to the eggs and larvae of horse sclerostomes with a review of the literature.” 13 (11), 277-284.

(176a) In an examination of 1,067 unselected pig diaphragms obtained from abattoirs in Vancouver City, 48 (4.5%) were found to be infected when both compression and digestion tests were used for the larvae of *Trichinella spiralis*. Infection was confined to garbage-fed pigs in which the incidence was 7.1%. Trichinous rats were collected from three of the piggeries which supplied infected pig tissue and it is suggested that rats may take some part in the epidemiology of this disease.

N.H.

(176b) [This paper has already appeared in *Nature, Lond.*, 1949, 163 (4151), 805-806. For abstract see *Helm. Abs.*, 18, No. 102b.]

(176c) Cameron believes that mice may be instrumental in transmitting disease to man in several ways. Transmission may be direct by biting man, by being eaten or by contaminating his food. It may also be indirect through house pets or blood-sucking

arthropods or by contaminating the water supply. The only helminth parasites likely to be transmitted to man from mice are *Hymenolepis nana* and *H. diminuta*. No vector is needed for these species so contamination of food with mice droppings may give rise to infestation in man. P.A.C.

(176d) Bloomfield reports on the action of 25 chemical constituents of urine, in solution at approximately their natural concentrations, on the three free-living stages of the horse strongylids. Only urea, ammonia, hippuric acid, sodium bicarbonate and benzoic acid proved toxic. Benzoic acid was toxic to ova, pre-infective and infective larvae; the other four substances were lethal only to pre-infective larvae. The pH of a solution affects its toxicity to some degree. It is suggested that these toxic constituents of urine may prove useful in the control of parasitic nematodes. P.L.I.E.R.

177—Canadian Journal of Research. Section D, Zoological Sciences.

- a. HELLER, A. F., 1949.—“Parasites of cod and other marine fish from the Baie de Chaleur region.” 27 (5), 243-264.

(177a) Heller gives short systematic notes on nine species of trematodes, nine species of cestodes, one species of acanthocephalan and four species of nematodes. *Echinobothrium raji* n.sp. from *Raja scabrata* is described and figured. The specimens were mostly collected from marine fishes taken on lines three or four miles at sea from Grande-Rivière, County Gaspé South, Quebec. R.T.L.

178—Caryologia. Pisa.

- a. BARIGOZZI, C., 1949.—“La struttura e il numero dei cromosomi di *Ascaris megalocephala* Cloquet durante la spermatogenesi.” 1 (2), 131-143. [English summary pp. 142-143.]

179—Ciencia. Mexico.

- a. FLORES BARROETA, L., 1949.—“*Spirocerca lupi* (Rudolphi, 1819) en perros de la ciudad de México (Nem., Spiruridae). (Nota preliminar.)” 9 (4/6), 139-143.

(179a) Flores Barroeta gives details of the morphology of *Spirocerca lupi* and of the lesions commonly produced by them in the aorta and oesophagus of dogs in Mexico City. There are several good photographs of the lesions and one photomicrograph of a section of a nodule in the oesophagus, showing the inflammatory infiltration of large numbers of neutrophils and eosinophiles, and mobilization of histiocytes. E.M.S.

180—Circular. Montana Veterinary Research Laboratory.

- a. SEGHETTI, L., 1949.—“Intestinal worms in sheep.” No. 192, 10 pp.

(180a) In sheep in the State of Montana, *Ostertagia circumcincta* is the nematode most commonly present in the fourth stomach while *Trichostrongylus* sp. and *Nematodirus* sp. are the most important species in the small intestine. *Haemonchus contortus*, *Strongyloides* sp., *Capillaria* sp., *Chabertia* sp. and *Trichuris* sp. seldom cause serious parasitism. Neither *Oesophagostomum columbianum* nor *Bunostomum* sp. have been observed in sheep in Montana. *Moniezia* sp. and *Thysanosoma actinioides* are common but their clinical importance is debatable. In the recommendations for control, phenothiazine in salt should be used through the lambing period and summer months where range treatment, i.e. change of pasture with rest periods, is alone not effective. For *Trichostrongylus* infection, phenothiazine (40 gm. for adults and 20 gm. for lambs) and for *Nematodirus*, tetrachlorethylene (dosage not stated), are recommended. Sheep using the National Forests are seldom seriously affected, as forest regulations require that they be kept always moving to new range. On the prairie ranges it is essential to develop many watering places and to use new routes. R.T.L.

181—Cleveland Clinic Quarterly.

- a. NOSIK, W. A. & GOODALL, R. J., 1949.—“Intracranial cysticercosis. Report of a case with operation.” 16 (2), 74-80.

182—Clinica Veterinaria. Milan.

- a. D'ESPOSITO, L., 1949.—“Di alcuni casi di infestione del sacco congiuntivale dei bovini da thelazie.” 72 (4), 108-118.

(182a) D'Esposito gives a general account of the eye conditions associated with Thelazia in cattle, and of the biology of the parasite. Seven cases seen in Italy are briefly described.

E.M.S.

183—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. BRUMPT, L. C. & CHABAUD, A. G., 1949.—“Le phototropisme positif des microfilaires d'onchocerques.” 143 (9/10), 646-648.
 b. GALLIARD, H., 1949.—“Les souches hyperinfestantes de *Strongyloides stercoralis*.” 143 (9/10), 686-688.
 c. STEFANOPOULO, G. J., OVAZZA, M. & BESSIS, M., 1949.—“Utilization du microscope à contraste de phase et de la méthode de l'ombrage en parasitologie. Application à l'étude de quelques microfilaires sanguicoles.” 143 (11/12), 767-768.
 d. ANNEZ, C., 1949.—“A propos de l'apparition d'une polarité primaire dans l'oeuf de *Passalurus ambiguus*.” 143 (13/14), 1019-1020.

(183a) In support of the hypothesis that the microfilariae of *Onchocerca* exhibit positive phototropism, Brumpt & Chabaud give details of a case of onchocerciasis in a white patient who had become infected at Foubot in the Cameroons.

R.T.L.

(183b) Galliard critically reviews the opinions of Nishigori, Fülleborn and Faust on the causes which favour hyper-auto-infection in strongyloidiasis. He claims that fatal strongyloidiasis is due to a profound biological modification of *Strongyloides stercoralis*.

R.T.L.

(183c) The authors strongly recommend the use of the phase-contrast microscope and the shadow method of examination for the differentiation and detailed study of the morphology of microfilariae, either in living or fixed preparations. They have the advantage over the usual methods of examination of showing up more clearly the internal structure and the presence of transverse striations.

J.J.C.B.

184—Concours Médical.

- a. GOSSET, J. R., 1949.—“Ascariodose et troubles digestifs.” 71 (16), 862-864.
 b. BONIS, 1949.—“Ascariodose et troubles digestifs.” 71 (23), 1346.

185—Current Science. Bangalore.

- a. SITA, E., 1949.—“The life-cycle of *Moniliformis moniliformis* (Bremser, 1811), *Acanthocephala*.” [Correspondence.] 18 (6), 216-218.

(185a) In worm-free laboratory-bred rats the eggs of *Moniliformis moniliformis* first appeared in the faeces 22-38 days after feeding with infective larvae obtained from the body-cavity of *Periplaneta americana*. Eggs continued to appear in the faeces for 130 days. The fertilized eggs have four envelopes and an embryo with numerous spines. In the insect gut this acanthor emerges and develops in the haemocoel into an acanthella which shows sex differentiation.

R.T.L.

186—Deutsche Medizinische Wochenschrift.

- a. ERHARDT, A., 1949.—“ Einige grundsätzliche Bemerkungen zur Wirkung von Oxyurenmitteln.” 74 (13), 406-407.
- b. DOLD, H. & THEMME, H., 1949.—“ Über die Möglichkeit der Übertragung der Ascaridiasis durch Papiergeld.” 74 (13), 409.
- c. HÄNEL, L. & WEISS, R., 1949.—“ Beitrag zur Wurmtherapie.” 74 (23), 745-746.

(186a) Erhardt draws attention to the need for adequate testing of drugs recommended for the treatment of enterobiasis. The proof of a vermifugal or ovicidal action is relatively simple but vermifugal action is much more difficult to establish and a study of the literature shows that many substances credited with vermifugal powers have not been properly tested. Erhardt points out that recovery may be entirely due to stringent hygienic measures and the natural course of the infection, whilst a drug which has been taken (and has in fact had no effect) may be credited with the cure. Such false conclusions may be prevented if a series of cases are all subjected to the same hygienic measures while only half of them are given the drug to be tested. A.E.F.

(186b) Dold & Themme show that transmission by paper money must be added to the many methods by which man can become infected with *Ascaris*. They have proved by experiment that fertilized *Ascaris* ova can be carried from an infected finger to a bank-note, and vice versa. Their experiments have also shown that the normal conditions prevailing in Germany during the five summer months are favourable for the development of *Ascaris* ova, especially when it is borne in mind that notes are often kept about the person in wallets or purses. Finally 20 well worn and dirty banknotes in actual circulation were found on examination to harbour fertilized *Ascaris* ova. A.E.F.

(186c) Hänel & Weiss describe their successful treatment of 43 cases of human helminth infections (mostly enterobiasis) with “Contaverm”, a preparation containing phenothiazine plus a small amount of phenolphthalein. The latter substance is present only to counteract the stool-hardening effect of phenothiazine: it is not in sufficient quantity to act as a laxative. The dose varied from 7 or 15 tablets of “Contaverm” (1.4 gm. and 3 gm. phenothiazine respectively) for children to 30 tablets (6 gm. phenothiazine) for adults, administered over a period of five days. In all cases “Contaverm” was well tolerated and there were no secondary effects. A.E.F.

187—Deutsche Tierärztliche Wochenschrift.

- a. RASCH, K., 1949.—“ Zur Bekämpfung der Rinder-Enteritis.” 56 (27/28), 225-227.
- b. WETZEL, R., 1949.—“ Das Vorkommen von *Trichostrongylus axei* in deutschen Pferden.” 56 (39/40), 321-323.
- c. FRISCHBIER, 1949.—“ Eitrige Nierenentzündung beim Pferd, hervorgerufen durch ‘verirrte’ Ascaridenlarven.” 56 (39/40), 324-325.
- d. GLÄSSER, 1949.—“ Zur Bekämpfung der Rinder-Enteritis.” 56 (45/46), 373-374.
- e. JACOB, E., 1949.—“ Zur Gründung parasitologischer Arbeits- und Forschungs-Ausschüsse.” 56 (45/46), 374-376.

(187a) Rasch dissents from the views expressed by Glässer & Weitzner [for abstract see *Helm. Abs.*, 17, No. 204c] that liver-fluke infection in cattle is a primary cause of Gärtner bacillus carriers among cattle. He states that changes in the bile ducts or gall-bladder are not essential for the formation of a reservoir of bacteria in the gall-bladder, and that we do not yet know the conditions which bring about the “carrier” state. A.E.F.

(187b) Faecal cultures from two horses at Hoya, which did not improve after phenothiazine treatment for supposed strongyle infection, showed that both animals in fact harboured *Trichostrongylus axei*: this is the first record of *T. axei* in horses in Germany. Wetzel further examined by culture methods the faeces of 83 horses with no clinical symptoms and found seven (i.e. 8.5%) to be lightly infected with *T. axei* (five cultures, each containing at least 150 gm. of faeces, were set up from each animal at short intervals and in only one case were larvae present in each culture). Later two further horses were

found to be infected, making a total of 11 cases in the Hoya district over a period of two years. Wetzel recommends further research to determine the distribution and economic importance of *T. axei* in German horses. In the meantime he considers that the present practice of mixed grazing for horses, cattle and sheep should continue, since the advantages greatly outweigh the risk of a few horses becoming lightly infected with *T. axei*. A.E.F.

(187c) Frischbier records a case of suppurating nephritis in a foal caused by aberrant ascarid larvae and states that this is the first record of ascarids injuring the kidneys of a horse. He emphasizes the probability of such infections occurring much more frequently than has hitherto been supposed, and points out that they can only be diagnosed by histological examination. A.E.F.

(187d) Commenting on an earlier paper by Rasch [see above No. 187a], Glässer emphasizes the close connection between liver-fluke and enteric infections in cattle. Of 25 cattle known to be carriers of enteric bacteria, 20 were found to be infected with liver-fluke. Glässer concludes that the damage caused by liver-fluke to gall-bladder, bile duct and liver is a primary factor in the aetiology of enteric infections in cattle and of the carrier problem. A.E.F.

(187e) The provision by the German State of facilities for adequate parasitological laboratory services, although highly desirable, remains a dream of the future. Jacob urges that in the meantime veterinary surgeons should themselves form committees which could provide identifications and advice for their colleagues. The flow of material to these centres would enable parasitologists to be trained and become familiar with the conditions prevalent in their areas. Cases worthy of special note should be published in the veterinary journals. Jacob protests against the practice of some advisory officers in giving laymen instructions for administering drugs to animals: this should always be in the hands of veterinary surgeons. A.E.F.

188—Diamond Walnut News.

- *a. SERR, E. F. & DAY, L. H., 1949.—"Lesion nematode injury to walnut trees. Paradox hybrids and Chinese wingnut rootstocks resistant." 31 (), 6-8. [January.]

(188a) Serr & Day state that the root-lesion or meadow nematode, *Pratylenchus pratensis*, is frequently found damaging the roots of various fruit and nut trees in several counties of California. Among hosts cited are apple, almond, peach, pear, plum, sweet cherry, quince, olive, fig and walnut. Mature walnut and sweet cherry may show severe root injury characterized by dark lesions in the root bark and much invasion of the feeder roots, with associated sparse or weak growth of upper twigs and branches which begin to die back slowly. If trees are pulled and the areas are planted again with young trees these too are often badly injured or make poor growth. Preliminary tests of twelve species of walnuts and walnut hybrids have shown that Paradox walnut hybrids (*Juglans*) and wingnuts (*Pterocarya*) have either a high degree of resistance, or are markedly tolerant to root-lesion nematodes in the situations where they were tested. [From a reprint.] T.G.

189—Discovery. Norwich.

- a. MacLAGAN, D. S., 1949.—"A new era in pest control." 10 (7), 219-223.

190—Dokladi Akademii Nauk SSSR.

- a. KRASTIN, N. I., 1949.—[Elucidation of the life-cycle of *Thelazia rhodesii* (Desmarest, 1827), parasitic in the eyes of cattle.] 64 (6), 885-887. [In Russian.]
- b. MARKOV, G. S. & ROGOZA, M. L., 1949.—[Parasite fauna of males and females of the green frog.] 65 (3), 417-420. [In Russian.]
- c. GARKAVI, B. L., 1949.—[A study of the life-cycle of the nematode *Streptocara crassicauda* (Creplin, 1829), parasitic in domestic and wild ducks.] 65 (3), 421-424. [In Russian.]

- d. SKRYABIN, K. I., 1949.—[Revision of the systematics of the trematode Order Paramphistomatata Skryabin & Schulz, 1937.] 65 (6), 919-921. [In Russian.]
- e. BELOPOLSKAYA, M. M., 1949.—[Life-cycle of the trematode *Spelotrema pygmaeum*, parasitic in birds.] 66 (1), 133-135. [In Russian.]
- f. PETROCHENKO, V. I., 1949.—[Elucidation of the life-cycle of the acanthocephalan *Polymorphus magnus* Skryabin, 1913, parasite of domestic and wild ducks.] 66 (1), 137-140. [In Russian.]
- g. KLESOV, M. D., 1949.—[The biology of the nematode *Thelazia rhodesii* Desmarest, 1827.] 66 (2), 309-311. [In Russian.]
- h. GINETSINSKAYA, T. A., 1949.—[New findings on the life-cycles of some bird trematodes.] 66 (5), 1017-1020. [In Russian.]
- i. GARKAVI, B. L., 1949.—[Elucidation of the life-cycle of the nematode *Tetrameres fissispina*, parasite of domestic and wild ducks.] 66 (6), 1215-1218. [In Russian.]
- j. GINETSINSKAYA, T. A., 1949.—[Life-cycle of the trematode *Cyclocoelum microstomum* (Creplin, 1829).] 66 (6), 1219-1222. [In Russian.]
- k. OSHMARIN, P. G., 1949.—[The phenomenon of the reduced intestine in *Anenteronema skryabini* n.g., n.sp.] 66 (6), 1223-1225. [In Russian.]

(190a) To find how *Thelazia rhodesii* larvae are released from their final host, Krastin examined daily the tears and nasal exudate of infected animals. He found 1-26 larvae in 37 out of 46 tear samples, but found them only once in 37 samples of nasal exudate. He also observed the parturition of larvae from eight females placed in warm saline. Krastin concluded that the intermediate host must come in contact with larvae in these secretions. Twenty calves kept in paddocks near the farm during the day and in a calfshed at night between May and July 1946 became heavily infected. In a second experiment between May and August 1946, calves kept during the day in the open and at night in a calfshed became infected, while calves kept in a covered place day and night were not infected, which suggested that the intermediate host must be a flying insect. In 1948 Krastin experimented with 13 young cattle whose eyes were protected from contact with insects by special masks. During the time of the experiment (lasting from 5th June to 4th August) none of the protected eyes was found infected, while unprotected eyes were found infected from 1st July. At the same time Krastin collected one of the common species of Muscidae which actively attack the eye region of cattle in the district where *T. rhodesii* is very common. When some of the flies were placed in a slightly alkaline solution at 37°-38°C. they produced infective larvae. In flies examined in August and September larvae were found in the head, thorax and abdomen. Those in the head and thorax were free, whilst those in the abdomen were enclosed in connective tissue capsules. It was found that larvae which left of their own accord and those artificially removed from the head, thorax and abdomen of the intermediate host continued their development in the conjunctival sac. Thus, according to Krastin, the larvae of *T. rhodesii* reach the infective stage in the thoracic region of a fly, free themselves from their capsules and migrate to the head where they concentrate in numbers from one to nine. The flies infect cattle by inoculation of larvae when attacking the eyes. In the Far East region (Habersouk district), *Musca convexifrons* was responsible for the transmission of this parasite. C.R.

(190b) Markov & Rogoza deal statistically with the incidence in 305 male and 286 female *Rana temporaria* of *Polystoma integerrimum*, *Tetracotyle* spp., *Gorgoderina vitelliloba*, *Dolichosaccus rastellatus*, *Haplometra cylindracus*, *Pleurogenes claviger*, *Rhabdias bufonis*, *Cosmocerca ornata* and *Oswaldocruzia filiformes*. It is clear that the parasites occur more often in males than in females, except in summer when the incidence is the same. C.R.

(190c) According to Garkavi the intermediate host of *Streptocara crassicauda* is *Gammarus lacustris*. Development from the egg to the infective stage in the intermediate host takes 19-25 days, depending on the temperature. In ducks, development from infection until oviposition takes 9-10 days. There are two larval stages in the intermediate host and two in the final host. The first and second stages are illustrated. C.R.

(190d) In this revision the Paramphistomatata are divided into four superfamilies: Paramphistomatoidea, Cladorchoidea n.superfam., Microscaphidioidea n.superfam. and

Opistholebetidoidea n.superfam. The Cladorchoidea are characterized by the presence of diverticula and an oral sucker. The Microscaphidioidea and Opistholebetidoidea are raised from family rank, there being no fundamental changes in the definitions. The Paramphistomatoidea comprise two families: (i) Paramphistomatidae and (ii) Gastrothylacidae. The superfamily Cladorchoidea contains the families Stephanopharyngidae n.fam., Cladorchidae, Diplodiscidae n.fam., Brumptidae n.fam. and Gastrodiscidae n.fam. The Cladorchidae contains the eight subfamilies: Kalitrematinae, Pseudocladorchinae, Balanorchinae, Cladorchinae, Pfenderiinae, Pseudodiscinae, Cleptodiscinae n.subfam. and Stichorchinae. There is a key to the Cladorchoidea. A key is also given to the Diplodiscidae in which Skryabin places the nine subfamilies: Nematophilinae n.subfam., Zygocotylinae, Watsoniinae, Diplodiscinae, Opisthodiscinae n.subfam., Schizamphistomatinae, Dadayinae, Helostomatinae n. subfam. and Nicollodiscinae n. subfam. C.F.

(190e) The intermediate hosts for *Spelotrema pygmaeum* are *Littorina rudis* and *L. obtusata*. The cercariae are tailless. There is no second intermediate host. Belopolskaya obtained experimental infection with cercariae in *Larus argentatus*, *L. marinus*, *Cephus grylle* and *Stercorarius cephus*. C.F.

(190f) In a district where great mortality in ducks was caused by *Polymorphus magnus* Petrochenko found that out of 455 *Gammarus (Rivologammarus) lacustris*, 373 (82%) were infected with acanthocephalan larvae. When fed to ducklings they produced *Polymorphus magnus*. *Gammarus lacustris* was experimentally infected with eggs of *P. magnus*. The development of larvae took 54-60 days. Petrochenko then fed 15 ducklings, eight days old with about 150 *Gammarus* collected from a lake and found that complete development in the definitive host took 27-30 days. C.F.

(190g) Klesov has found that, in the Ukraine, the intermediate hosts for *Thelazia rhodesii* are *Musca larvipara* and *M. autumnalis*. Only those animals which are in the open become infected. *Stomoxys calcitrans*, other blood-sucking insects and *Musca domestica* are of no importance in the transmission of *Thelazia rhodesii*. C.F.

(190h) Ginetsinskaya fed the metacercariae of *Codonocephalus winigerus* (Strigeidae) from the muscles of *Rana ridibunda* to fledglings of *Ixobrychus minutus* and found that three days later there were 15 sexually mature flukes. She describes the morphology and eggs of this parasite and gives a diagnosis of the genus *Codonocephalus*. This differs (i) from *Ophiosoma* by the strong development of the suckers, presence of a pharynx, and absence of vitelline glands in the anterior part of the body, (ii) from *Nematostrigea* by the form of the anterior end and the proportion of the anterior and posterior parts of the body, and (iii) from *Cardiocephalus* by the different structure of the posterior end of the body. Ginetsinskaya also found that the intermediate host of *Echinoparyphium baculus* is *Physa fontinalis*. After leaving the intermediate host the cercaria encysts on the snail. She fed cercariae to a bird, and post mortem 13 days later ten sexually mature specimens of *E. baculus* were found. C.F.

(190 i) According to Garkavi the intermediate host of *Tetrameres fissispina* in western Siberia is *Gammarus lacustris*. Depending on temperature, the infective stage is reached in 8-18 days. When fed to the duckling it develops into a sexually mature parasite which lays eggs in 18 days. There are two moults in the intermediate host and two in the final host. C.F.

(190j) Ginetsinskaya has studied experimentally in *Limnaea ovata* the life-cycle of *Cyclocoelum microstomum* from *Fulica atra*. She describes in detail the miracidium, redia and cercaria. The metacercaria encysts in the same snail. C.F.

(190k) Oshmarin describes *Anenteronema skrjabini* n.g., n.sp. from the connective tissue between the trachea and oesophagus of *Garrulus glandarius*. He gives a full

description of the genus which belongs to the Filariata, family Aproctidae. The main feature of this genus is the reduction of the intestine to a small appendage at the end of the oesophagus. C.R.

191—East African Medical Journal.

- a. DEWHURST, K. E., 1949.—“The tribal distribution of bilharzia in East Africa.” 26 (4), 90–92.

(191a) [This paper has already appeared in *J. trop. Med. Hyg.*, 1949, 52 (3), 60–61. For abstract see *Helm. Abs.*, 18, No. 26g.]

192—Empire Journal of Experimental Agriculture.

- a. JONES, E. T., 1949.—“The breeding of disease-resistant varieties of oats. Part I. Physiologic races, diseases, and pests.” 17 (67), 199–204.

(192a) Jones mentions that Goodey found the following varieties of oats highly resistant to attack by the stem eelworm, *Anguillulina dipsaci*, namely Grey Winter, S.81, Picton, Avoine d'hiver, Unique, Victoria, Capa and Pampa. [The three last named had been found to be resistant in the U.S.A. and Goodey's results merely confirmed their resistance when tested in England.] T.G.

193—Encyclopédie Entomologique. Paris.

- a. MIMEUR, J. M., 1949.—“Contributions à l'étude des zoocécidies du Maroc. Nématodes.” 24, 17–23.

(193a) In Morocco *Heterodera marioni* is the only nematode parasite of plants which has been observed. A list of 42 plant hosts, with bibliographical references, follows a brief description of the parasite. R.T.L.

194—Extension Circular. Nebraska Agricultural College.

- a. ALFORD, S. W., 1949.—“Sodium fluoride for swine roundworms.” No. 251, 1 p.

195—Extension Circular. North Carolina Agricultural Extension Service.

- a. ELLIS, D. E., 1949.—“Control root-knot in the vegetable garden.” No. 337, 12 pp.

(195a) After briefly outlining the symptoms of root-knot in garden vegetables, Ellis recommends for control both crop rotation and soil injection. A suitable 3-course rotation for a small farm garden is vegetables, maize and chickens, the three fenced plots being adjacent to the chicken house. Instructions are given for soil treatment with any one of four nematocides: chloropicrin, ethylene dibromide, D-D mixture, and uramon. Autumn treatment is recommended, especially with uramon, and it is desirable to add a dressing of organic matter 30 days after uramon to avoid reduced crop yields. D-D mixture and ethylene dibromide are cheaper than the other two. B.G.P.

196—Farmers' Bulletin. U.S. Department of Agriculture.

- a. HALL, W. J. & WEHR, E. E., 1949.—“Diseases and parasites of poultry.” No. 1652, 97 pp. [Revised.]

197—Farmers' Weekly. London.

- a. SOPER, M. H. R., 1949.—“When clover fails.” 31 (20), 47.

(197a) In some districts of England, failure of red clover due to *Anguillulina dipsaci* is wrongly attributed to the fungus *Sclerotinia trifoliorum*. The eelworm infection is transferable on seed: three out of twelve samples examined contained dormant eelworms. The increasingly widespread use of the combine harvester and the sowing of infected seed

are the most likely means of spread. Cat's ear and probably other weeds act as alternative hosts. Apparently trefoil is not infected.

R.T.II

198—Farming. London.

- a. LAPAGE, G., 1949.—“Husk or hoose.” 3 (5), 150-152.

199—Grower. London.

- a. DUNN, E., 1949.—“Controlling root knot eelworm: Shell D.D. compared with steaming.” 31 (20), 921, 923-925.

(199a) In Jersey, Dunn has compared the effects of injecting D-D mixture with those of steam sterilization of soil, to control *Heterodera marioni* in tomatoes under glass. The D-D was injected 5 in. deep at 15-in. intervals at the rate of 300 lb. per acre, six weeks before planting. The soil was consolidated by treading, then aerated by forking after three weeks; nevertheless some wilting and scorching of plants occurred, and their roots became more heavily infested than those of plants in the steamed houses. Steaming cost over nine times as much as D-D injection yet, even so, after allowing for treatment costs the takings for fruit per house were: steamed, £515; injected, £397; untreated, £234 [not £34 as misprinted].

B.G.P.

200—Hassadeh.

- a. SHWEIG, K., 1949.—[D-D—a new material for the control of nematodes.] 29 (6/7), 287-288. [In Hebrew.]

201—Helvetica Paediatrica Acta.

- a. MARTIN, H. & ROSENBUSCH, H., 1949.—“Ascariden-Perforation durch den Darm. Fremdkörper-Peritonitis.” 4 (2), 164-169. [English, French & Italian summaries pp. 168-169.]

202—Hereditas, Lund. Supplement.

- a. DOUGHERTY, E. C., 1949.—“The rôle of free-living nematodes in genetic research.” [Abstract.] Proceedings of the 8th International Congress of Genetics, Stockholm, July 7-14, 1948, pp. 562-564.

(202a) Dougherty says that free-living nematodes of the sub-order Rhabditina show, to some extent, the phenomenon of eutely, or cell constancy. Their chromosome number is small ($2n = 10$ to 24) and they are readily cultivable in the absence of other organisms. Their sex patterns vary from normal dioeciousness through types of hermaphroditism to strict thelytokous parthenogenesis. *Rhabditis pellio* has been cultivated in a sterile medium. The Rhabditina thus provide unique features for the study of morphological and physiological genetics.

J.B.G.

203—Hospital. Rio de Janeiro.

- a. VASCONCELLOS, D. & FERREIRA LIMA, J., 1949.—“Duodenites parasitárias.” 35 (3), 401-406.
 b. PAES DE OLIVEIRA, P., 1949.—“Estrongiloidose, problema sanitário. Incidência numa coletividade militar (1.º G.A.C. Motorizado).” 35 (3), 437-443.
 c. ARMBRUST, A. DE F., 1949.—“Esquistossomose da vesícula biliar.” 35 (4), 467-489. [English summary pp. 487-488.]
 d. COUTINHO, J. O. & PESSÔA, S. B., 1949.—“Sobre um foco autóctone de esquistossomose mansônica em Jacarezinho (norte do estado do Paraná—Brasil).” 35 (4), 531-542.

(203d) Two foci of schistosomiasis mansoni have been found in the city of Jacarezinho, Paraná; 20 cases were found in 51 faecal samples examined, all being persons under 20 years old born and living in the city. It is considered that these foci are recently established. *Australorbis* sp. were found in the city's two rivers, the Ourinhos and the Agua Feia. The principal source of infection is probably an old public water supply on the Agua Feia.

E.M.S.

204—Indian Farming.

- a. PRASAD, B. M., 1949.—“Helminthic infestations in sheep and goats.” 10 (4), 155-157.

(204a) Prasad gives a brief account of the chief groups of helminths of sheep and goats in India, and states that the success or failure of the wool and mutton industry depends largely on the extent to which these parasitic diseases can be kept within reasonable bounds.

R.T.L.

205—Indian Journal of Helminthology.

- a. SINHA, B. B., 1949.—“Description of a new genus of trematode, subfamily Encyclometrinae Nicoll, 1932, from the intestine of a tortoise, *Hardella thurgi*.” 1 (2), 71-78.
b. BAUGH, S. C., 1949.—“On a new avian trematode, *Psilorchis thapari*, (fam. Psilostomidae) with a record of *Psilochasmus oxyurus* (Crep.) from India.” 1 (2), 79-84.
c. TANDON, R. S., 1949.—“A new trematode, *Lissemysia ovata* n.sp. of the family Aspidogastridae Poche, 1907 from fresh water molluscs.” 1 (2), 85-92.
d. DAYAL, J., 1949.—“Trematode parasites of Indian fishes, Part II.” 1 (2), 93-120.

(205a) *Encyclobrephus robustus* n.g., n.sp. from *Hardella thurgi* is differentiated from *Encyclometra*. It has a spinous cuticle, and an oral sucker larger than the ventral sucker. The genital pore is much in front of the ventral sucker. The vitelline glands are extensive. The eggs are in size one-third those of *Encyclometra*. The subfamily Encyclometrinae is amended to include the new genus.

R.T.L.

(205b) *Psilorchis thapari* n.sp. from *Athena brama indica* differs from *P. indicus* (type) and *P. ajgani* in the presence of a sphincter in the acetabulum and of scale-like spines on the ventral surface, and in the shape of the excretory vesicle. *Psilochasmus oxyurus* is recorded from *Anas poecilorhyncha* in the vicinity of Allahabad.

R.T.L.

(205c) *Lissemysia ovata* n.sp. in *Vivipara bengalensis*, *Lamellidens corrianus* and *Indonaia caerulea* from the Kukrail stream near Lucknow is described and figured, and is differentiated from *L. indica*. The diagnosis of *Lissemysia* is emended.

R.T.L.

(205d) From fresh-water fishes near Lucknow, *Phyllodistomum vachius* n.sp., *Gomtia gagatia* n.sp. and *G. lucknowia* n.sp. are described and figured. Dayal does not agree with Mehra (1941) that the genera *Gomtia* and *Opisthorchis* are identical. *Plesiodistomum callichrous* n.g., n.sp. from *Callichrous pabda* is distinguished from other genera of the Aporrhutinae by its simple tubular excretory bladder and by the presence of a receptaculum seminis and Laurer's canal. *Neoganada secunda* n.sp. is differentiated from *N. barabankiae*. *Pseudohaplorchis macrones* n.g., n.sp. from *Macrones seenghala* differs from the related genera *Haplorchis* and *Monorchotrema* in having the genital pore outside the intestinal caeca, and in the absence of an operculum in the egg. *Ganadotrema indica* n.g., n.sp. from *Heteropneustes fossilis* is based on a single specimen which possesses a long spiny cirrus: this, with other characters, distinguishes the new genus from *Leptophallus*, *Ganada*, *Neoganada* and *Nizamia*.

R.T.L.

206—Indian Journal of Medical Sciences.

- a. PATEL, J. C., 1949.—“Ankylostomiasis as it faces the practitioner.” 3 (5), 339-348.
b. DESA, A. E. & MONTEIRO, L., 1949.—“Urinary schistosomiasis in India, with a report of one case.” 3 (6), 376-381.

(206b) Large numbers of eggs identified as those of *Schistosoma haematobium* were found in the urine of a Hindu woman, 19 years of age, who had had painless haematuria for nine years. All her life the patient had lived at Guhagar Taluka in the Ratnagiri District, and in the city of Bombay. She stated that her brother and a large number of people in her village were affected with the same symptoms. After treatment with antimony tartrate no schistosome eggs could be detected. Cystoscopic examination before treatment showed coarse and stunted papillomata with a curiously greyish-yellow appearance and did not suggest malignant transformation of benign papillomata.

R.T.L.

207—Indian Journal of Veterinary Science and Animal Husbandry.

- a. GOPALAKRISHNAN, V. R., 1949.—“Stephanofilariasis among buffaloes in Assam.” Year 1948, 18 (4), 227-231.

(207a) Gopalakrishnan has investigated the ear-sore which occurs sporadically in 20-50% of the buffaloes in the Nowgong district of Assam. At times it becomes epidemic but is rarely fatal. The infection is associated with *Stephanofilaria* sp., probably identical with *S. assamensis* which causes hump-sore of cattle in India. Tartar emetic ointment 1 part in 25 of vaseline, applied daily for three-day periods with rest intervals of three days gave satisfactory clinical recovery.

R.T.II

208—Indian Medical Gazette.

- a. MALHOTRA, S. L., 1949.—“Filarial eosinophilosis.” 84 (7), 292-295.
 b. CHANDA, M. R., 1949.—“Three unusual cases of roundworm infection.” 84 (7), 297-298.
 c. DAS, N. & MUKHERJI, M., 1949.—“Successful removal of an elephantiasis scrotum weighing 70 lbs. (35 srs.) in a very poor surgical risk case.” 84 (8), 347-348.

(208a) Malhotra gives the clinical histories of six cases showing pulmonary eosinophilia to illustrate the importance of filariasis in the causation of allergic asthma and the development of transitory pulmonary infiltrations. These early changes are reversible in contrast to the irreversible changes seen in late chronic disease due to mechanical or inflammatory obstructive effects. In a case of *Taenia solium* infection, asthmatic attacks, diffuse pulmonary mottling and high eosinophilia disappeared after anthelmintic treatment and appeared to be manifestations of an allergic reaction to taeniasis.

R.T.II

209—Indian Medical Journal.

- a. ROY, H. K., 1949.—“Helminthic diarrhoeas.” 43 (3), 88-92.

(209a) As a cause of diarrhoea in the tropics, helminth infections probably make an easy third to bacterial and protozoal infections. In nearly 50% of all cases of intestinal helminth infections, it is a major symptom. Roy recognizes four types: (i) chronic recurrent diarrhoea, (ii) alternate diarrhoea and constipation, (iii) dysentery or with dysenteric features, (iv) acute diarrhoea with collapse and dehydration. Diagnosis depends on routine microscopical examination of the faeces for eggs or larvae. Useful anthelmintics are tabulated for the specific infections. Treatment should be withheld until dehydration or circulatory asthenia has been corrected.

R.T.II

210—Indian Veterinary Journal.

- a. LAPAGE, G., 1949.—“The organisation of parasitology.” 26 (1), 77-80.
 b. VAIDYANATHAN, S. N., 1949.—“*Schistosoma spindalis* infection in a cow—treatment with anthiomaline (M. & B).” 26 (2/3), 225-228.
 c. VAIDYANATHAN, S. N., 1949.—“*Ascaris vitulorum*—prenatal infection in calves.” 26 (2/3), 228-230.

(210a) Lapage discusses briefly the antiquity and importance of parasitology, and stresses the need for organization of the study of parasites and the training of parasitologists. He puts forward an outline of his conception of the organization of a modern department of parasitology, which would comprise a number of departments, each differing in function from the other, but all devoted to the study of some aspect of parasitology. The internal structure of these separate departments and their interrelationships are indicated schematically.

J.J.C.B

(210b) The faeces of a cow about eight years old and in a very emaciated condition showed numerous eggs of *Schistosoma spindale* and of *Paramphistomum* sp. with blood and mucus. 13 c.c. of anthiomaline were given subcutaneously on 13th January 1948 and

20 c.c. on 28th February. Examination of the faeces on 3rd March and at intervals up to 1st February 1949 was negative. It is believed that the schistosome worms had been completely eliminated. R.T.L.

(210c) Among the diseases which were observed in calves attending the Agricultural College Veterinary Hospital at Coimbatore between June 1945 and October 1946, ascariasis was the most frequent, but the incidence in calves over three months old was negligible. Eggs of *Ascaris vitulorum* occurred most commonly, both in *Bos bubalis* and *B. taurus*, from 31-40 days old. The youngest infected calf was 24 days old. It is suggested that the denial of colostrum to a newborn calf renders it more susceptible to *Ascaris* infection. R.T.L.

211—Journal of the American Medical Association.

- a. EDELMAN, M. H. & SPINGARN, C. L., 1949.—“Clonorchiasis in the United States. Report of four cases.” 140 (14), 1147-1150.

(211a) The eggs of *Clonorchis sinensis* were detected in the faeces of four white immigrants from Shanghai residing in New York City. Chloroquine diphosphate given to one patient for three weeks had no anthelmintic effect. Methylosaniline chloride in doses of 60-120 mgm. thrice daily for two to four weeks was followed by clinical improvement, a decrease in the eosinophilia and a temporary disappearance of the eggs. R.T.L.

212—Journal of the American Veterinary Medical Association.

- a. WATSON, D. F., 1949.—“Parasite control on large haciendas.” 115 (870), 176-178.
b. RYFF, J. F., HONESS, R. F. & STODDARD, H. L., 1949.—“Removal of the fringed tapeworm from sheep.” 115 (870), 179-180.
c. QUIN, A. H., 1949.—“Some advancements in veterinary therapy.” 115 (872), 343-346.
d. TODD, A. C., HANSEN, M. F., KELLEY, G. W. & WYANT, Z. N., 1949.—“On treatment of larval *Strongylus vulgaris* (bloodworms) *in situ*.” 115 (873), 473-474.

(212a) In the Andes range in Central Peru an American mining company owns twelve large haciendas covering a million acres stocked with 15,000 cattle, 175,000 sheep, 800 pigs and 2,000 horses and mules. There are heavy infections with species of *Dictyocaulus*, *Trichostrongylus*, *Ostertagia*, *Haemonchus*, *Nematodirus*, *Bunostomum*, *Cooperia*, *Trichuris*, *Oesophagostomum* and *Chabertia*, and with *Moniezia*, hydatid and cysticerci. Liver-fluke causes many deaths. A mixture containing 12.5 gm. phenothiazine with 2% copper sulphate and 2% nicotine sulphate per oz. is given. The usual dose is 2 oz. which contains 25 gm. phenothiazine. During 1948, 75,880 sheep were dosed with an average loss of 1 per 3,000. Staggering due to the nicotine was corrected by the administration of alcohol. All animals had access to a salt mixture of 1 in 10 phenothiazine and salt with minerals. The mortality on most of the haciendas was lowered by more than 90%. Cattle received the same mixture without nicotine. Experiments in which hexachlorethane had been added to the mixture were made on 300 known infected cattle and gave excellent results without toxic symptoms. R.T.L.

(212b) Five out of seven sheep were completely rid of *Thysanosoma* and *Moniezia* by 10 gm. of bis (5-chloro-2-hydroxyphenyl) methane, either as 10 gm. of teniathane or 50 c.c. of 20% suspension of diphenthane-70. An apparently beneficial clinical effect of the suspension was seen in 92 sheep with *Moniezia*. R.T.L.

(212c) Twelve thoroughbred yearlings were fed once daily with 30 gm. of phenothiazine in a sweetened base. The strongyle egg-counts, which ranged from 2,000 to 13,500 per gramme of faeces, decreased by 69% in three weeks. R.T.L.

(212d) Neither of the two new filaricides, diethylcarbamazine (caricide) and sodium arsenamide (caparside), proved effective against the larval forms of *Strongylus vulgaris* located in the anterior mesenteric artery of the horse. R.T.L.

213—Journal of Clinical Pathology. London.

- a. BOYCOTT, J. A., 1949.—“An improved swab for the detection of threadworm ova.” 2 (2), 149.

(213a) A strip of cellophane approximately three inches by one inch is doubled over the end of a wooden tongue depressor six inches by three-quarter inch and held in place by several turns of a rubber band while being rubbed along the perianal folds, with pressure just short of causing pain. After use the swab is placed in a paper envelope. It is claimed that its strength, the single crease in the cellophane, and the ease of packing are improvements on the NIH swab. R.T.L.

214—Journal of Helminthology.

- a. KUNG, C. C., 1949.—“Notes on some avian species of *Ascaridia*.” 23 (3/4), 95–106.
 b. MARKOWSKI, S., 1949.—“On the species of *Diphyllbothrium* occurring in birds, and their relation to man and other hosts.” 23 (3/4), 107–126.
 c. ALVES, W., 1949.—“The eggs of *Schistosoma bovis*, *S. matthei* and *S. haematobium*.” 23 (3/4), 127–134.
 d. PRUDHOE, S., 1949.—“A review of the trematode genus *Galactosomum*.” 23 (3/4), 135–156.
 e. FENWICK, D. W., 1949.—“Investigations on the emergence of larvae from cysts of the potato-root eelworm *Heterodera rostochiensis*. I. Technique and variability.” 23 (3/4), 157–170.
 f. GOODEY, J. B., 1949.—“The control of *Anguillulina dipsaci* on the seed of teazle and red clover by fumigation with methyl bromide.” 23 (3/4), 171–174.
 g. FRANKLIN, M. T. & GOODEY, J. B., 1949.—“A cotton blue-lactophenol technique for mounting plant-parasitic nematodes.” 23 (3/4), 175–178.
 h. KENDALL, S. B., 1949.—“Nutritional factors affecting the rate of development of *Fasciola hepatica* in *Limnaea truncatula*.” 23 (3/4), 179–190.

(214a) Kung reports on his examination of collections of *Ascaridia* spp. from a large number of avian hosts from various parts of the world, and deals with certain morphological characters of the six species (*A. columbae*, *A. compar*, *A. cristata*, *A. galli*, *A. hermaphrodita* and *A. numidae*) which were encountered. The spicules and the number and arrangement of the tubercles in the cloacal region are considered to be of taxonomic value in the differentiation of species. *A. granulorum*, *A. lineata*, *A. perspicillum*, *A. sinensis* and probably *A. styphlocerca* are considered to be synonyms of *A. galli*. P.L.Ler.

(214b) Markowski reviews the species of *Diphyllbothrium* recorded from birds in an attempt to determine the number of valid species. The morphological characters of ten species are tabulated and discussed, and it is concluded that there are only two valid species in birds, namely *D. dendriticum* (Nitzsch, 1824) and *D. ditremum* (Creplin, 1825). These are described in detail and contrasted. *D. ditremum* is characterized by the absence of a “neck” and it occurs only in birds belonging to the families Phalacrocoracidae, Anatidae, Ardeidae and Colymbidae. *D. dendriticum* possesses a “neck”, elongated posterior segments, a bilobed ovary, and the segments may contain one to four sets of genital organs. It occurs in Corvidae, Pelecanidae and Laridae but appears to be adaptable to mammalian hosts such as cat, dog, rat and man. *Mergus americanus* is recorded as a new host for *D. ditremum*, and *Larus delawarensis* for *D. dendriticum*. J.J.C.B.

(214c) Alves reports on the measurements (length, maximum breadth and breadth at a point 50 μ from the anterior end) of 500 eggs respectively of *Schistosoma haematobium*, *S. bovis* and *S. matthei*. A statistical analysis of the measurements shows that it is possible to differentiate between the eggs of the three species. The statements of certain observers that *S. matthei* cannot establish itself in man are considered, and Alves concludes that their statements are not well founded. P.L.Ler.

(214d) Prudhoe summarizes, with a provisional differential key, the characters of the ten species assigned to *Galactosomum* and of *G. fregatae* n.sp. from *Fregata magnificens rothschildi*. Their hosts are tabulated. *G. lacteum*, of which *G. phalacrocoracis* is regarded as a synonym, is fully described for the first time from European cormorants. While *Microlistrum* is a synonym of *Galactosomum*, *Stictodora* is a distinct genus. R.T.L.

(214e) In a preliminary paper on the emergence of *Heterodera rostochiensis* larvae, Fenwick describes a technique for obtaining potato-root diffusate. He proceeds to the examination of data obtained by hatching fifteen lots of 50 individual cysts and discusses relative merits of different methods of analysis. He recommends that hatching data be subjected to either logarithmic or angular transformation. The very great variability inherent in the data renders necessary the use of large samples of cysts in order to obtain reasonable accuracy, one hundred cysts per batch being considered a suitable number. D.W.F.

(214f) It is shown that infested seed of both teasle and red clover can be successfully treated with methyl bromide by using the method devised by T. Goodey for onion seed [for abstract see Helm. Abs., 14, No. 119b]. The germination of both teasle and red clover was slightly improved by fumigation, which also controlled fungi and bacteria very well. It is reported that eelworm disease of teasle was first discovered in England by Staniland and Miss Britton in 1948, and that about 6% of red clover samples examined by T. Goodey in 1944 yielded specimens of *Anguillulina dipsaci*. J.B.G.

(214g) Detailed instructions are given for a method by which plant-parasitic and some free-living nematodes may be satisfactorily killed, fixed and made into permanent stained preparations in a very short time as compared with the older methods. After killing by gentle heat the eelworms are transferred to a 4% formalin+10% acetic acid fixative for a few hours. They are then placed in lactophenol with 0.01% cotton blue at about 70°C. for two to three minutes until they are suitably stained. From this they are mounted in slightly tinted lactophenol and the coverslip is ringed with a cement for which the formula is given, or with lactophenol gum. The method is suitable for use with *Ditylenchus* (*Anguillulina*) *dipsaci*, *Aphelenchoides* spp. and with dorylaims and mononchs. M.T.F.

(214h) Studies on laboratory-reared *Limnaea truncatula* experimentally infected with *Fasciola hepatica* show that in those snails which have access to food the number of rediae is much larger and they give rise to many more mature cercariae than in those kept under starvation conditions. The number of rediae and the amount of food available from the snail's tissues govern the rate at which the infection progresses. With single-miracidium infection the number of rediae produced never exceeded 37, but these matured rapidly. Mass infection resulted in retarded development owing to the strain on the economy of the snail. R.T.L.

215—Journal of Immunology.

a. WATTS, N. P., 1949.—“Prophylactic use of schistosomal antigen.” 62 (2), 183-192.

(215a) There was a statistically significant reduction in the number of cercariae which developed into adult *Schistosoma mansoni* after mice had been “vaccinated” with an antigen prepared from adult *S. mansoni*. R.T.L.

216—Journal of Infectious Diseases.

a. SPRENT, J. F. A., 1949.—“On the toxic and allergic manifestations produced by the tissues and fluids of *Ascaris*. I. Effect of different tissues.” 84 (3), 221-229.

(216a) Sprent produces experimental evidence which suggests that some of the toxicity of whole *Ascaris* extract may be due to the use of animals with an unrecognized

hypersensitivity. Anaphylactoid symptoms may be due at times to protein disintegration and the formation of histamine. When anaphylactogenic conditions are avoided, no symptoms follow repeated injections of rapidly lyophilized tissues, although the liver cells are damaged and there may be infiltration of cells into the periportal and peribronchial tissues.

P.A.C.

217—Journal of Laboratory and Clinical Medicine.

- a. BASSEN, F. A., THOMSON, A. E. & SILVER, A., 1949.—“The occurrence of false positive trichina precipitin tests in infectious mononucleosis.” 34 (4), 543-548.

218—Journal de Médecine de Bordeaux.

- a. CAILLON & GENESTE, 1949.—“Sur un cas de draconculose calcifiée.” 126 (3), 136.
- b. LOUBAT, BOUËT & GENESTE, 1949.—“Occlusion intestinale par ascaris.” 126 (5), 239.

219—Journal of Morphology.

- a. BULLOCK, W. L., 1949.—“Histochemical studies on the Acanthocephala. I. The distribution of lipase and phosphatase.” 84 (2), 185-199.
- b. BULLOCK, W. L., 1949.—“Histochemical studies on the Acanthocephala. II. The distribution of glycogen and fatty substances.” 84 (2), 201-225.
- c. VAN CLEAVE, H. J., 1949.—“Morphological and phylogenetic interpretations of the cement glands in the Acanthocephala.” 84 (3), 427-457.

(219a) Bullock has determined the distribution of lipase and alkaline phosphatase in the tissues of *Echinorhynchus coregoni*, *Pomphorhynchus bulbocolli*, *Neoechinorhynchus cylindratus* and *N. emydis*. Gomori's histochemical methods were used, the substrates being “Tween 60” and sodium glycerophosphate. Neither enzyme could be demonstrated in the tissues of either species of *Neoechinorhynchus*. In all the other parasites, lipase was present in the subcuticula of the trunk and, to a lesser extent, in the lemnisci. Alkaline phosphatase was present in the subcuticula of the trunk. The concentration was greatest in the outer layers. The significance of these results in relation to carbohydrate-fat transformations and transport mechanisms is discussed.

W.P.R.

(219b) Bullock has examined the histological distribution of glycogen, fat and related substances in *Echinorhynchus coregoni*, *E. gadi*, *Pomphorhynchus bulbocolli*, *Neoechinorhynchus cylindratus* and *N. emydis*. Glycogen was found chiefly in the subcuticula and the muscles; smaller amounts were present in the reproductive organs, the lacunar system, the ganglia and the lemnisci. Neutral fat and fatty acid, which were not identified separately, had a distribution similar to that of glycogen. Phospholipoid, which was found in most tissues, was most concentrated in the subcuticula of the trunk, where cholesterol was also identified. Bullock is of the opinion that the subcuticula of the praesoma is physiologically distinct from that of the trunk and, like the lemnisci, may be concerned in the absorption and excretion of fat.

W.P.R.

(219c) The cement glands of Acanthocephala produce secretions which cement the sexes together during copulation. The Eoacanthocephala have the most generalized type of cement apparatus: it is a simple undivided syncytial gland with a few giant nuclei. There is a separate cement reservoir. The Archiacanthocephala have eight globular or pear-shaped glands each containing a single giant nucleus. There is no separate reservoir. In the Palaeacanthocephala the cement glands are long and tubular, and show a diversity in form, arrangement and number, but all show a remarkable uniformity in fundamental construction. Details of the cement glands of various genera are described.

R.T.L.

220—Journal of Neuropathology and Experimental Neurology.

- a. BASSETT, R. C. & LOWENBERG, K., 1949.—“Cerebral schistosomiasis.” 8 (2), 220–224. [Discussion pp. 224–225.]

(220a) This is the clinical history of a case of cerebral schistosomiasis contracted on Leyte. The cortex of the brain, as seen at operation, was scattered over with innumerable shotty yellow-orange discrete nodules, 1–12 mm. in diameter. Larger lesions, about the size of a thimble, undermined the cortex and had a calcareous consistency; they contained *Schistosoma japonicum* eggs. There was no obvious gross reaction, increase in pressure or excessive amount of fluid in the sub-arachnoid spaces. The histology of the lesions is described and illustrated by five microphotographs. After the operation the patient remained without symptoms for ten months when he had a mild sensory Jacksonian seizure in the left hand. Repeated examination of the faeces and urine had always been negative. R.T.L.

221—Journal of Parasitology.

- a. DeGIUSTI, D. L., 1949.—“The life cycle of *Leptorhynchoides thecatus* (Linton), an acanthocephalan of fish.” 35 (5), 437–460.
 b. AUGUSTINE, D. L. & WELLER, T. H., 1949.—“Experimental studies on the specificity of skin tests for the diagnosis of schistosomiasis.” 35 (5), 461–466.
 c. CROWELL, R. M., 1949.—“Observations on *Phyllodistomum lohrenzi* (Loewen, 1935), (Trematoda: Gorgoderidae).” 35 (5), 472–474.
 d. VON BRAND, T., MEHLMAN, B. & NOLAN, M. O., 1949.—“Influence of some potential molluscacides on the oxygen consumption of *Australorbis glabratus*.” 35 (5), 475–481.
 e. VAN CLEAVE, H. J., 1949.—“The acanthocephalan genus *Neoechinorhynchus* in the catostomid fishes of North America, with descriptions of two new species.” 35 (5), 500–512.
 f. ROBINSON, Jr., E. J., 1949.—“The life history of *Postharmostomum helices* (Leidy, 1847) n.comb. (Trematoda: Brachylaemidae).” 35 (5), 513–533.
 g. GUSTAFSON, P. V., 1949.—“Description of some species of *Rhabdochona* (Nematoda: Thelaziidae).” 35 (5), 534–540.
 h. MORGAN, B. B., SCHILLER, E. & RAUSCH, R., 1949.—“The occurrence of *Contracaecum travassosi* (Nematoda) in North America.” 35 (5), 541–542.
 i. McMULLEN, D. B., 1949.—“Notes on the course of a pinworm infection.” 35 (5), 542–543.
 j. MADSEN, H., 1949.—“*Heterakis gallinarum* (Schränk, 1788) nec *Heterakis gallinae* (Gmelin, 1790).” 35 (5), 543.
 k. SIMÕES BARBOSA, F. A. & PONTUAL, C., 1949.—“A new host for *Platynosomum fastosum* Kossack, 1910 (Trematoda, Dicrocoeliidae).” 35 (5), 546–547.
 l. BACIGALUPO, J. & RIVERO, E., 1949.—“Vaginal sphincter, organ of *Echinococcus granulosus* (Batsch, 1786).” 35 (5), 547.
 m. EDWARDS, R. L., 1949.—“Internal parasites of central New York muskrats (*Ondatra z. zibethica* L.).” 35 (5), 547–548.

(221a) The life-cycle of *Leptorhynchoides thecatus*, an acanthocephalan parasite of rock bass, *Ambloplites rupestris*, uses the amphipod *Hyaella azteca* as vector. The larva settles down under the serous coat of the intestine for 14 days during which period it develops into an acanthella and breaks into the haemocoel. It reaches the infective stage in 32 days under laboratory conditions. In the definitive host the male takes four weeks and the female eight weeks to complete its development. P.A.C.

(221b) Though non-human schistosomes may cause dermatitis, they do not appear to sensitize subjects so as to produce false positive reactions with skin tests. Rabbits were exposed to *Cercaria stagnicola*, *C. physellae*, and *C. elvae*, all of which produced dermatitis. High dilutions of antigens made from *S. mansoni* gave no evidence of the production of antibodies or precipitins. P.A.C.

(221c) Crowell describes in detail the complex genital apparatus of *Phyllodistomum lohrenzi*, a parasite of *Lepomis* spp. in the Maumee River, Ohio. Young parasites are of a creamy white colour but become progressively darker as they get older. P.A.C.

(221d) Von Brand, Mehlman & Nolan have determined, by manometric methods, the effects of 72 compounds on the oxygen consumption of *Australorbis glabratus*. The

interpretation of the results was difficult because some compounds affected respiration by causing molluscs to retract within the shell; other compounds were probably true inhibitors of respiratory enzymes. The most active compound, α -nitrostilbene, at a concentration of $4.4 \times 10^{-5}M$, caused a 99% reduction in oxygen uptake. Tentative suggestions as to the relationship between chemical structure and physiological activity are given for some compounds. W.P.R.

(221e) Material originally described as *Neoechinorhynchus australis* by Van Cleave in 1931 is now shown to consist of two species. He therefore emends the description of this species and describes *N. distractus* n.sp. distinguished by the size of the hooks and the position of the gonads relative to the lemnisci. He also describes *N. strigosus* n.sp. which has a slim cylindrical body while the male genitalia reach very far anteriorly. P.A.C.

(221f) *Postharmostomum helici*, a parasite of the deer mouse, *Peromyscus leucopus*, uses the striped wood snail, *Anguispira alternata*, as both first and second intermediate hosts, but a second individual must be found by the metacercariae: they do not enter the snail in which they have developed. *Polygyra thyroidis* and *P. carolinianus* and possibly other pulmonate snails may also act as second intermediate host while the chipmunk may be a definitive host. All the stages and their development times are described. P.A.C.

(221g) Gustafson describes *Rhabdochona decaturensis* n.sp., a parasite of the freshwater fish *Aplodinotus grunniens* in Illinois. The spicules are the distinguishing feature. *R. cotti* n.sp. from *Cottus cognatus* in a fish hatchery in Washington is recognized by the ova which have long polar filaments. The females are large while the males have a distinctive arrangement of the pre-anal papillae. *R. pellucida* n.sp., a parasite of *Ptychocheilus oregonensis* in Davis Lake, Washington, is a small species. The shape and size of the left spicule are distinctive. *R. cascadilla* Wigdor, 1918 is redescribed. P.A.C.

(221h) *Contracaecum travassosi* is recorded for the first time from North America, where it occurred in *Pandion haliaetus carolinensis* in Ohio. A brief description is given. P.A.C.

(221i) McMullen has studied with the aid of cellophane tape swabs the course of infection with *Enterobius vermicularis* in an adult 43 years of age. Three phases in the infection were observed: (i) a period while in the family environment, (ii) a transitory period, (iii) a period when the infection was barely maintained until finally it disappeared. During the first two periods no rhythm was discerned in the time the worms appeared. In the third period the reduction of the infection resulted in a noticeable periodicity. The intervals between worm migrations varied from 25 to 43 days. There was no evidence of hyperinfection nor of any return of the females to the colon. R.T.L.

(221j) The nematode previously known as *Heterakis gallinae* should be known as *H. gallinarum* (Schrank, 1788). P.A.C.

(221k) *Platynosomum fastosum* has been found in Brazil in the liver of a wild cat, *Herpailurus yaguarondi yaguarondi*, a new host record. P.A.C.

(221l) [This is an extended version of *J. Parasit.*, 1948, 34 (6, Sect. 2), p. 25. For abstract see *Helm. Abs.*, 17, No. 313bi.]

(221m) Parasites of *Ondatra z. zibethica* in New York State include *Notocotylus quinquesequalis*, *N. urbanensis*, *Pseudodiscus zibethicus*, *Echinostoma revolutum*, *Opisthorchis tonkai*, *Plagiorchis proximus*, *Hymenolepis evaginata*, *Taenia taeniaeformis* and *Trichuris opacus*. There were also cysticerci and some cestode fragments which could not be identified. P.A.C.

222—Journal of the Philippine Medical Association.

- a. CRUZ, J. R., GUYTINGCO, A. & KASILAG, W. R., 1949.—“Observations on hookworm anemia in the North General Hospital.” 25 (4), 191-194.

(222a) At the North General Hospital in Manila the cases of hookworm anaemia admitted are now increasing in numbers. It is suggested that hookworm anaemia may develop at a much slower pace than is generally believed and may not reach its late and more serious stage for two or three years after infection. R.T.L.

223—Journal and Proceedings. Institute of Sewage Purification, London.

- a. McLACHLAN, J. A., 1949.—“Sewage sludge and disease—the rôle of the sludge digestion process.” Year 1949, Part 1, pp. 75-77. [Discussion pp. 87-90.]
 b. WILSON, H., 1949.—“Disease and sewage sludge. Risks of transmission of disease through the use of sewage sludge as fertilizer.” Year 1949, Part 1, pp. 78-81. [Discussion pp. 87-90.]

(223a & b) In papers presented to a conference of the South African Branch of the Institute of Sewage Purification, Wilson & McLachlan made passing reference to helminth eggs in sewage effluent. In the discussion Mönnig pointed out that *Ascaris* and *Taenia* eggs are easily killed by moulds. These may produce antibiotics which would probably kill helminth eggs. Ortlepp thought that composting would provide the heat necessary to destroy *Ascaris* eggs in sludge. Abbott cited evidence showing that there was no relation between the use of sludge and the incidence of roundworms in children, but Krige believed that his own children had acquired *Ascaris* infection from digested sludge used abundantly in his garden. R.T.L.

224—Journal of the Royal Egyptian Medical Association.

- a. HALAWANI, A., BAZ, I. & DAWOOD, M., 1949.—“A preliminary report on the treatment of ambulant cases of Bancroftian filariasis with heterazan in Egypt.” 32 (5), 395-403.
 b. HIDAYAT, M. A., 1949.—“Endemic hepato-lienal fibrosis. (Endemic hepato-splenomegaly) (Egyptian splenomegaly).” 32 (5), 404-422.
 c. NAGATY, H. F., 1949.—“A revised list of the helminth parasites of man and food mammals in Egypt.” 32 (5), 423-425.
 d. HAFEZ, A. H., 1949.—“Localised filarial mass of the breast simulating carcinoma.” 32 (5), 429-433.

(224a) In Rosetta seventeen unselected labourers with *Microfilaria bancrofti* were treated with hetrazan for 10-23 days while continuing at work. The dosage ranged from 0.9-2.0 mgm. per kg. body-weight. The drug was well tolerated. The microfilariae were markedly reduced in all cases on the second day, and in the majority became negative or showed marked reduction six months after treatment. Five of the cases remained negative during the second three months after treatment and two remained negative throughout six months' observation. In one case in which the drug was not well tolerated the case history is given in detail. R.T.L.

(224b) Hidayat outlines the operative mortality and post-operative complications following splenectomy in 141 cases of splenomegaly and discusses the aetiology, especially in relation to schistosome infection, its clinical features, pathology and treatment of this disease as seen in Egypt. R.T.L.

(224c) This revised list of 95 helminths recorded in Egypt contains 21 species in man, 20 in camels, 22 in bovines and 32 in sheep. The new records are *Haemonchus contortus*, *Ostertagia ostertagi*, *Oesophagostomum radiatum* and *O. venulosum* in cattle. R.T.L.

(224d) In Egypt filariasis of the breast resembling carcinoma has not been reported hitherto. In the case now described a localized mass, about 5 cm. in diameter, was diagnosed as an operable scirrhus carcinoma. There was no elephantiasis and no microfilariae in the blood. An operation was refused but a biopsy was made. The tissue removed was hard,

fibrous and gritty on incision, and on microscopical examination showed a granulomatous condition infiltrated by polymorphs, small round cells, foreign body giant cells, excess eosinophiles, and foreign bodies suggestive of filariae. There was no evidence of malignancy.

R.T.L.

225—Journal of the Royal Sanitary Institute.

- a. DE MEILLON, B., 1949.—“Eradication of the vectors of insect-borne diseases of man.” 60 (3), 177-183.

(225a) Success in mosquito eradication has only recently been achieved as a triumph of administration backed by sound knowledge of bionomics, thoroughly trained personnel and ample funds. De Meillon cites, as examples, the campaigns against *Aedes aegypti* and *Anopheles gambiae* in Brazil and Upper Egypt, and the eradication of *Simulium neavei* from an area of 65 square miles in Kenya.

R.T.L.

226—Journal of the South African Veterinary Medical Association.

- a. STEPHAN, S. A. R., 1949.—“A note on the occurrence of the ‘gapeworm’—*Syngamus trachea* in Natal.” 20 (2), 90-92.

(226a) *Syngamus trachea* is recorded from South Africa for the first time. The infection was noticed in two Black Australorp chicks from Red Hill, Durban, but the disease had been prevalent and diagnosed as a common cold for some years by local poultrykeepers. During November and December 1948, the mortality among the two-months-old chicks had risen to 60%. It is suggested that the original infection had been imported from India.

R.T.L.

227—Journal of the Tennessee Academy of Science.

- a. O'ROURK, A. E., 1949.—“Preliminary survey of the macroscopic parasites of food fishes in the vicinity of Solomons, Maryland.” [Abstract of paper presented at the 10th Annual Meeting of the Association of Southeastern Biologists, Knoxville, Tenn., April 14-16, 1949.] 24 (3), 174.
- b. BYRD, E. E., 1949.—“Observations on the anatomy of a male acanthocephalan.” [Abstract of paper presented at the 10th Annual Meeting of the Association of Southeastern Biologists, Knoxville, Tenn., April 14-16, 1949.] 24 (3), 174.
- c. EDNEY, J. M., 1949.—“*Echinococcus granulosus* in Kentucky dogs.” 24 (3), 227.

(227a) The helminth parasites found in 583 food fishes in the vicinity of Solomons, Maryland, were the larval cestodes *Echeneibothria* [*Echinobothrium*] sp., *Otobothrium crenacolle*, *Nybelinia bisulcatum* and immature *Telosentis tenuicornis*, *Serrasentis sagittifer*, *Tanaorhamphus* sp. and *Pomphorhynchus* sp. The infections were slight and had not injured the hosts.

R.T.L.

(227b) In *Apororhynchus amphistomi*, the elongated club-shaped pouch associated with the terminal portion of the male ducts communicates with the bursal cap. Both contain a fluid which can be shifted from one to the other. When expressed into the bursal cap of the extroverted bursa, this fluid causes the bursa copulatrix to become turgid. The pouch therefore serves as a reservoir for the fluid of the bursal cap.

R.T.L.

228—Journal of Tropical Medicine and Hygiene.

- a. JOPLING, W. H., 1949.—“The eradication of schistosomiasis: a plea for a rational approach to the problem.” 52 (6), 121-126.

(228a) The rate of spread of schistosomiasis in man is much greater than that of its control. Eradication by (i) mass treatment campaigns, (ii) snail destruction and (iii) sanitation and education is considered. Mass therapy as the major line of attack is condemned

and the strictly limited application of snail destruction is stressed. The provision of basic sanitary needs in endemic areas will not only break the cycle of infection permanently but will also assist in eradicating other diseases such as ancylostomiasis and cholera. The article includes the history of a case which terminated fatally after intensive treatment by antimony. R.T.L.

229—Journal of the Yorkshire Agricultural Society.

- a. THOMPSON, H. W., 1949.—“The potato eelworm in Yorkshire.” No. 100, pp. 36–43.

(229a) Thompson discusses the incidence of potato-root eelworm in Yorkshire, the symptoms of attack, the mode of spread, and control methods. Known there since 1916, it is now prevalent in areas adjacent to the Ouse and Humber in the East Riding, and in 42 parishes along the south-east border of the West Riding. It occurs in tomato houses on over 200 holdings, many of these houses having been erected around 1930 on potato-sick land. The pest is more common in sands, peats, silts and warps than in heavy soils. In neither field nor glasshouse is chemical soil treatment wholly satisfactory, but glasshouses can be moved on to clean land or the soil can be steam-sterilized. In the field the extension of the rotation by ley farming would be the best solution. B.G.P.

230—Journal of the Zoological Society of India.

- a. LOOS, C. A., 1949.—“Notes on free-living and plant-parasitic nematodes of Ceylon—No. 4.” 1 (1), 17–22.
 b. LOOS, C. A., 1949.—“Notes on free-living and plant-parasitic nematodes of Ceylon—No. 5.” 1 (1), 23–29.
 c. LOOS, C. A., 1949.—“Notes on free-living and plant-parasitic nematodes of Ceylon—No. 6.” 1 (1), 30–36.

(230a) Loos describes and figures some new members of the subfamily Criconematinae obtained from soil in Ceylon, namely *Criconemoides gaddi* n.sp. and *C. brachyurus* n.sp., of which males and females were found, and *C. cocophillus* n.sp., of which females only were found. A brief note is added on *Criconema octangulare* Cobb, 1914, specimens of which were also found. T.G.

(230b) Loos describes and figures dorylaimid nematodes belonging to the genus *Xiphinema* obtained from Ceylon soils as follows: females only of *X. americanum* Cobb, 1914, males and females of *X. pratensis* n.sp., *X. insignis* n.sp. and *X. radicola* Goodey, 1936. In the case of the last-mentioned species this is the first time that males have been reported. Adults of both sexes were also found of *X. ensiculiferum* (Cobb, 1914) Thorne, 1937. T.G.

(230c) Loos describes and figures more dorylaimid nematodes obtained from Ceylon soils, namely *Taprobanus ornatus* n.g., n.sp., *Nygolaimellus abnormis* n.g., n.sp., *Aporcelaimus cocophilus* n.sp., and *Aporcelaimus digitalis* n.sp. Males and females of the first and third species, and females only of the second and fourth, were found. T.G.

231—Landbouwkundig Tijdschrift.

- a. SEINHORST, J. W., 1949.—“Stengelaaltjes en knollenaaltjes bij aardappelen.” 61 (9), 638–641.
 b. OOSTENBRINK, M., 1949.—“Bestrijding van de aardappelmoeheid in verband met de wettelijke maatregelen.” [Abstract.] 61 (9), 651.
 c. FLIK, H. M., 1949.—“Plantenziektenkundige bepalingen bij de export van aardappelen.” 61 (9), 652–659.

(231a) Seinhorst describes the symptoms set up in potato tubers when invaded by parasitic nematodes of the stem eelworm type, and shows that there are two rather different pictures presented by the infected tissues. In the first case affected areas are compact with whitish edges and extend throughout the tuber. They are fairly firm in texture and become brown and spongy. In the second type the disease is largely confined to more superficial

regions of the tuber and the affected areas appear as whitish to dirty brownish discoloured patches or cavities of a soft spongy texture. Symptoms of the first kind are often accompanied by injury to the leaves and are caused by three to four races of the stem eelworm, *Ditylenchus dipsaci*. Those of the second kind are caused by the tuber eelworm, *D. destructor*, which does not invade leaf tissues. Little or no resistance to infection by stem eelworm is shown by most varieties of potato, but some resistance is manifested by certain wild *Solanum* species and hybrids of them. Amongst potato varieties tested for susceptibility to tuber eelworm, one called Red Star proved to be fairly resistant.

T.G.

(231b) Oostenbrink briefly describes the new Dutch law for controlling potato sickness. It is a comprehensive Act under which various regulations can be made as necessary. From 1950 potatoes cannot be grown more often than once in three years, except in the early potato district of north Holland. Where eelworm is already established, not only must host crops be withheld for a number of years, but also the transportation of cysts must be avoided by omitting also bulbs, nursery trees, and seedlings of cabbage, beet etc. for transplanting. The Act is likely to bear hardly on allotments, but "the law pinches most where it is most needed".

B.G.P.

(231c) Flik explains the Dutch phytopathological regulations governing the export of potatoes. Various importing countries have their own stringent regulations, varying from country to country, and these may affect the export of other products. Thus, the finding of a single cyst of the potato-root eelworm in a consignment of bulbs to the U.S.A. might stop the entire export of bulbs to that country. Among many pests and diseases this is the only eelworm specifically dealt with. Italy requires imported potatoes to have come from a field at least two kilometres from the nearest known focus of "potato sickness". Norway, Finland and Denmark apply this restriction also to imported bulbs, and stipulate that "potato sickness" must not have occurred during the last ten years within this 2-km. circle. Sweden requires a 5-km. circle. Several countries insist that seed potatoes must be free from cysts.

B.G.P.

232—Leaflet. Ministry of Agriculture, Northern Ireland.

- a. ANON., 1949.—"Liver fluke disease." No. 24, 4 pp.

233—Maandblad voor de Landbouwvoorlichtingsdienst.

- a. DOEKSEN, J., HERINGA, K. & SWIERSTRA, D., 1949.—"Voorlopige mededeling over de schade door de leverbot bij rundvee veroorzaakt." 6 (5), 219-220.

(233a) Doeksen, Heringa & Swierstra draw attention to the losses in decreased milk and beef production due to fascioliasis in cattle in the Netherlands. Milking tests revealed that infestation with liver-flukes caused an 11.5% decrease in milk yield. This amounts to an annual loss which is estimated at approximately 19 million gulden. Losses due to decreased body-weight in slaughter stock are estimated at 4 million gulden. They consider that these amounts warrant the institution of prophylactic measures for the control of fascioliasis. It is announced that the Veterinary Faculty of the University of Utrecht, the Agricultural Association T.N.O., and the Central Agricultural Research Institute at Wageningen have formed a liver-fluke working-party for the investigation of better control measures and the collection of relevant data.

P.L.Ier.

234—Medical Journal of Australia.

- a. BEARUP, A. J., LAWRENCE, J. J. & HEYDON, G. A. M., 1949.—"The incidence of parasitic infections in New South Wales." 36th Year, 2 (1), 7-10.

(234a) The faeces of 410 New South Wales children examined by the direct centrifugal flotation concentration technique revealed thirteen cases of *Enterobius vermicularis* and one of *Trichuris trichiura*. One case of *Trichostrongylus colubriformis* also occurred; this has already been reported by Heydon & Bearup (1939).

R.T.L.

235—Medycyna Weterynaryjna.

- a. TRAWIŃSKI, A., 1949.—“ Czy jelita świń dotkniętych włośnicą są zdadne do użytku? ” 5 (1), 32-33. [In Polish: English summary p. 33.]
- b. GAUGUSCH, Z., 1949.—“ Doświadczenia nad przechodzeniem strącalników włośniowych z samiec ciężarnych drogą krążenia płodowego na potomstwo. ” 5 (1), 33-35. [In Polish: English summary pp. 34-35.]
- c. WADOWSKI, S., 1949.—“ Na marginesie art. prof. Dr. W. Stefańskiego ‘Zadania parazytologii polskiej w zwalczaniu chorób inwazyjnych zwierząt domowych’. ” 5 (1), 48-49. [In Polish.]
- d. HAY, J., 1949.—“ Obserwacje nad intensywnością jajeczkowania motylicy wątrobowej w ciągu całego roku. ” 5 (3), 171-178. [In Polish: English summary p. 177.]
- e. DUBISKA, Z., 1949.—“ Rzadki wypadek obecności glisty *Ascaridia perspicillum* w jaju kurzym. ” 5 (4), 264-265. [In Polish.]
- f. STEFAŃSKI, W., 1949.—“ Stosowanie fenotiazyny przeciw słupkowcom u koni. ” 5 (4), 270-273. [In Polish: English summary p. 273.]
- g. KOZICKA, J., 1949.—“ Spostrzeżenia nad zakażeniem sielawy (*Coregonus albula* L.) przez *Ichthyotaenia longicollis* Rudin. ” 5 (6), 438-441. [In Polish: English summary p. 441.]
- h. GAUGUSCH, Z., 1949.—“ Przyczynek do badań nad odpornością otorbionych włośni mięsniowych. ” 5 (6), 443-444. [In Polish.]
- i. FURMAGA, S. & WYSOCKI, E., 1949.—“ Przypadek intensywnego zarobaczenia wilka. ” 5 (6), 452-453. [In Polish.]

(235a) According to Trawiński the paragraph in the Meat Inspection Order 1929, Poland, which says that in cases of trichinelliasis the carcass and all the internal organs should be condemned, has no scientific foundation and should be amended to condemn only the carcass, but to allow the use of the intestines for sausage casings. C.R.

(235b) Gaugusch infected rabbits with *Trichinella spiralis* larvae, one group 14 days before mating, a second group seven days after mating, and a third group just before parturition. He found that precipitins could be detected in the blood of the offspring by the precipitation test. This indicates that the precipitins were transmitted via the embryonic circulation from the mother to the foetus, but there was no prenatal infection. These results differ from those obtained by Roth [for abstract see Helm. Abs., 5, No. 173c], who was able to obtain prenatal infection with trichinella in guinea-pigs. C.R.

(235c) Wadowski draws attention to the methods for control of parasites of domestic animals as reviewed by Stefański [for abstract see Helm. Abs., 17, No. 325c]. He urges the need for surveys to produce a parasitological map of Poland in order to facilitate control. He also stresses the necessity for carefully planned methods. C.R.

(235d) Hay reports the results of observations of the egg-laying capacity of *Fasciola hepatica* in 147 cattle in the Warsaw abattoir from September 1946 till August 1947. He found that although the uteri of the parasites contained the same quantity of eggs throughout the year, the egg-laying capacity varies, being highest in spring (March, April, May) and lowest in winter (January, February), as shown by faecal egg-counts. According to him, the extent of the lesions found in the liver of cattle does not depend on the quantity of liver-flukes present. The data in his paper apply to groups of animals and not to individuals. He thinks that the best time to detect infected animals would be March, April and May. C.R.

(235e) Dubiska reports a case of *Ascaridia perspicillum* [= *A. galli*] in a hen's egg. C.R.

(235f) Stefański reports his observations on the efficacy of phenothiazine administered to 81 horses. There were no toxic effects. He recommends phenothiazine as an anthelmintic in horses against Strongylidae, and against some Trichostrongylidae in sheep and *Heterakis gallinae* in chickens. C.R.

(235g) Kozicka found 80% of 150 *Coregonus albula* examined to be infected with *Ichthyotaenia longicollis*. The intestinal contents included *Cyclops* and *Daphnia* spp., with larvae of *I. longicollis*. The average number of larvae per fish was seven. She considers that the intensity of infection by adult *I. longicollis* is not proportional to the larval

infection of the copepods but depends on acquired resistance and on many other favourable or unfavourable factors. C.R.

(235h) Out of 45,000 pigs killed in Gdynia abattoir, 25 were infected with encapsulated trichinella larvae and 123 with calcified cysts of trichinella. To find the longevity of trichinella larvae, Gaugusch kept infected meat at temperatures varying from 18°-25°C for 259 days. Six out of eight mice fed with the almost completely decomposed meat were afterwards found to be infected. C.R.

(235i) In a wolf examined by Furmaga & Wysocki the following helminths were found: *Alaria alata*, *Euparyphium melis*, *Mesocestoides lineatus*, *Taenia hydatigena*, *Multiceps serialis*, *Taenia* sp., *Toxascaris leonina*, *Uncinaria stenocephala* and *Eucoleus aerophilus*. C.R.

236—Memorias do Instituto Oswaldo Cruz.

- a. TRAVASSOS, L. & FREITAS, J. F. TEIXEIRA DE, 1949.—“Relatório da excursão do Instituto Oswaldo Cruz ao norte do Estado do Espírito Santo, junto ao Parque de Reserva e Refúgio Soóretama, em Fevereiro e Março de 1948.” Year 1948, 46 (3), 605-631.
- b. TRAVASSOS, L., 1949.—“Contribuição ao conhecimento da fauna helmintológica dos peixes d'agua doce do Brasil. IV. Dois novos gêneros de Cosmocercidae (Nematoda) e uma nota de nomenclatura helmintológica.” Year 1948, 46 (3), 633-637.
- c. MACHADO DE MENDONÇA, J., 1949.—“Nova espécie do gênero *Dirofilaria* Railliet & Henry, 1911 (Nematoda).” Year 1948, 46 (3), 647-651.

(236b) *Cosmoxynema vianai* n.g., n.sp. and *Cosmoxynemoides aguirrei* ng., n.sp. from *Curimata gilberti* are described and figured. *Cosmoxynema* is distinguished from other Cosmocercidae by the presence of a buccal capsule and characteristic ova. *Cosmoxynemoides* is distinguished from *Cosmoxynema* by the absence of a buccal capsule and by the structures of the anterior extremity which appears to be covered by a small cap. Travassos concludes with a notification of nomenclatural changes for four of his genera whose names have since been found to be preoccupied: *Diasia* Travassos, 1922 becomes *Diasella* nom. nov. with the type *Diasella diasi* n.comb.; *Parabaris* Travassos, 1922 nec Braun, 1881 becomes *Denticauda* Fukui, 1929 with the type *Denticauda parabaris* n.comb.; *Schrankia* Travassos, 1925 becomes *Schranknema* nom.nov. with *Schranknema schranki* n.comb. as type; and *Angra* Travassos, 1929 becomes *Angranema* nom.nov. with *Angranema angrae* n.comb. as type. E.M.S.

(236c) Male specimens of *Dirofilaria* recovered from the body-cavity of *Bradypus tridactylus* are referred to a new species, *D. freitasi* n.sp. From other species whose males have been described, the new species is distinguished by the number and disposition of the caudal papillae, form and size of the spicules, length of the body etc. *D. immitis* is the most closely related species. E.M.S.

237—Military Surgeon.

- a. LAWRENCE, R. L. & HUDGENS, J. H., 1949.—“Intestinal parasites in a prison population.” 104 (5), 371-373.

(237a) The faeces of 437 out of 2,103 persons admitted over a period of three years to prisons in the southern U.S.A. showed evidence on admission of intestinal parasitic infections, namely *Necator americanus* 385, *Trichuris* 57, *Enterobius* 16, *Ascaris* 10, *Hymenolepis* 2, *Schistosoma mansoni* 4, *Diphyllobothrium* 1. The highest incidence occurred in inmates from Puerto Rico. It is pointed out that the return from the Pacific of Navy personnel infected with *Ancylostoma duodenale* may result in the establishment of this species in the U.S.A. R.T.L.

238—Mycologia.

- a. DRECHSLER, C., 1949.—"A nematode-capturing fungus with anastomosing clamp-bearing hyphae." 41 (4), 369-387.

(238a) Drechsler describes at some length *Nematoctonus concurrens* n.sp., a fungus bearing clamp-connections like those characteristic of some Basidiomycetes. Nematodes, either *Panagrolaimus subelongatus* or *Ditylenchus* sp., are captured by means of glandular cells which secrete adhesive globules. Hyphae grow into the victim and utilize its body contents; conidia and glandular cells are produced on these hyphae. There are very detailed drawings. J.B.G.

239—Nachrichtenblatt der Biologischen Zentralanstalt Braunschweig.

- a. GOFFART, H., 1949.—"Gegenwartsfragen zur Bekämpfung des Kartoffelnematoden." 1 (4), 56-58.

(239a) Goffart discusses the control of potato-root eelworm which has become more widespread in Germany since the war. The necessity for rotation is stressed, some alternative crops (cereals, legumes, strawberries) being better for this purpose than others (brassicas, beet). Badly infested land should be rested from potatoes for five years, after which they should appear in 3- or 4-course rotation. Rotation is also of prophylactic value since severe eelworm attack has never been found where potatoes occur not more than once in four years. Ellenby's work on differential susceptibility in potato varieties and *Solanum* spp. is referred to, and recent developments in nematocidal soil fumigation are briefly summarized. B.G.P.

240—Nature. London.

- a. SAVAGE, R. M., 1949.—"Natural epizootics of *Polystoma integerrimum* in tadpoles." [Correspondence.] 164 (4171), 618.

(240a) Savage gives a brief preliminary account of quantitative studies of natural epizootics of *Polystoma integerrimum* in tadpoles. Eggs laid by the adult fluke hatch at two main periods, one at the end of April or beginning of May, and the second about a month later. Some of the primary larvae hatching from these eggs become neotenic and lay eggs which hatch in July (secondary larvae). The neotenic cycle is abortive in ponds where the tadpoles metamorphose in June, but may produce heavy infestations in tadpoles which do not metamorphose before July or even August. The importance of the neotenic cycle lies in securing late infestation, which protects the parasite both from the very heavy rate of loss from the gill chamber, and from the consequences of high mortality of the tadpoles. No deleterious effect of the parasite on the tadpole was observed. E.M.S.

241—Nederlandsch Tijdschrift voor Geneeskunde.

- a. DE WIT, J. C., 1949.—"De doelmatigheid van de behandeling van actieve oxyuriasis met vermifuga in de practijk." 93 (16), 1234-1240. [English, French & German summaries pp. 1239-1240.]

(241a) De Wit reviews briefly the more recent literature dealing with the treatment and epidemiology of enterobiasis in man. He records his findings with gentian violet and phenothiazine, each of which was administered to separate groups of 25 adults and 40 children. The patients were dosed twice with an interval of two weeks between treatments, and were examined immediately after the administration of the second dosage and then at the end of 3, 5, 10, 14, 20, 26 and 52 weeks. The results of these examinations are tabulated and prove that phenothiazine was more efficient than gentian violet. The chances of reinfection were so great that 95% of the patients in both groups were reinfected by the 52nd week after treatment. Because phenothiazine proved slightly toxic in some individuals, De Wit considers that it should be used only in serious cases of active enterobiasis. He concludes that the control of this disease will be better achieved by hygienic rather than pharmacological measures. P.L.L.R.

242—New Zealand Journal of Agriculture.

- a. ANON., 1949.—“Avoiding losses through condemnation of pig carcasses.” 79 (4), 377-379, 381, 383-384.

(242a) In New Zealand hydatid cysts are of common occurrence in pigs. In some districts 50% of the livers are condemned. It is pointed out that if farmers effectively used the arecolin tablets they pay for when registering their dogs this waste would be almost wholly eliminated.

R.T.L.

243—New Zealand Journal of Science and Technology. A. Agricultural Research Section.

- a. JACKS, H., 1949.—“Soil disinfection. IX. Control of eelworm in outdoor soil.” Year 1948, 30 (2), 123-126.

(243a) In experimental outdoor tomato plots infested with *Heterodera marioni*, Jacks reports excellent control from injecting either chloropicrin or D-D mixture 5 inches deep at 3 ml. per sq. ft. 15% methyl bromide with 25% chloropicrin at the same rate gave moderate control, while 15% methyl bromide alone had no significant effect; nor had carbon disulphide at 6 ml. per sq. ft. Significantly increased yields of tomatoes resulted from chloropicrin and from 15% methyl bromide with 25% chloropicrin, while the yield increased from D-D just fell short of significance. Nevertheless at one-sixth the price of chloropicrin, D-D shows the greater economic practicability.

B.G.P.

244—North American Veterinarian.

- a. MARK, I. C., 1949.—“Fouadin intraperitoneally for the treatment of filariasis in dogs.” 30 (9), 588-590.
- b. MARSH, H., 1949.—“Teniasis in lambs.” [Questions & Answers.] 30 (12), 788.

(244a) In the Texas coastal area *Dirofilaria immitis* is very prevalent in dogs. In Mark's experience, 12% of all dogs examined are infected. Fouadin treatment, intravenously or intramuscularly, is used as a routine but has certain disadvantages which led to the trial of intraperitoneal injection of the intramuscular dose. The results of this method were so effective that it is now used exclusively in routine treatment by the author. Case histories of seven animals cured by intraperitoneal injection with fouadin are described. In every instance microfilariae were numerous in the blood but disappeared at the end of treatment, which also cured the ill-effects of the parasitic infection.

J.J.C.B.

(244b) Anthelmintic treatment of lambs under two months old is contra-indicated. A copper sulphate and nicotine solution or lead arsenate (dose 0.5 gm.) is effective. For lambs under 70 lb. in weight the dosage of copper sulphate and nicotine is 1 oz. of a 2% solution of copper sulphate containing 2% of Blackleaf 40.

R.T.L.

245—Ohio Journal of Science.

- a. HARWOOD, P. D. & COOKE, V., 1949.—“The helminths from a heavily parasitized fox squirrel, *Sciurus niger*.” 49 (4), 146-148.

(245a) A fox squirrel, *Sciurus niger*, shot near Ashland, Ohio, contained an immature *Macracanthorhynchus hirudinaceus*, two *Rictularia* sp., eight *Moniliformis clarki* and twelve *Choanotaenia sciuricola* n.sp. The latter is distinguished from 39 other species of *Choanotaenia* by the 22 hooks on the rostellum, and is also differentiated in various ways from the remaining nine species.

R.T.L.

246—Physiological Zoölogy.

- a. BUSHNELL, L. D. & ERWIN, L. E., 1949.—“Comparison of the antitryptic action of the large roundworm of the chicken (*Ascaridia galli*) and the common earthworm (*Lumbricus terrestris*).” 22 (2), 178-181.

(246a) Bushnell & Erwin found that saline extracts of *Ascaridia galli* and *Lumbricus terrestris* inhibit the digestion of casein by “Bacto-trypsin”. The extract from the nematode was more active than that from the earthworm.

W.P.R.

247—Phytopathology.

- a. MIDDLETON, J. T., STONE, M. W. & KENDRICK, Jr., J. B., 1949.—“Incidence of lima bean root rot in soils treated with fumigants and insecticides for control of wireworms.” 39 (10), 813-821.
- b. BAINES, R. C., KLOTZ, L. J., CLARKE, O. F. & DeWOLFE, T. A., 1949.—“Hot-water treatment of orange trees for eradication of the citrus-root nematode and *Phytophthora citrophthora*.” [Abstract of paper presented at the 31st Annual Meeting of the Pacific Division, American Phytopathological Society, Vancouver, B.C., June 16-18, 1949.] 39 (10), 858.

(247a) Middleton et al. are concerned with root rot of lima beans caused by a complex of four fungi, and its possible relationship with the soil fauna, especially wireworm and *Heterodera marioni* as predisposing factors. Eelworm populations were not estimated. Applications of ethylene dibromide, reported as an efficient nematocide, did not substantially reduce the amount of root rot, and this suggests that root-knot does not predispose to fungal root rot. B.G.P.

(247b) Baines et al. state that *Tylenchulus semi-penetrans* was eradicated from the bare roots of young citrus trees by immersion in hot water at 113°, 116° or 119°F. for 25, 10 and 5 minutes respectively. The eelworm was also eradicated from roots of sour-orange potted plants by heating to 115°F. for 20 minutes in a water bath, or by heating the soil and roots of balled orange trees at 102°-105°F. for 20 hours in moist air. A time lag of 2-3 hours occurred in the heating of the soil under these last conditions. Some injury is suffered by bare roots on being treated in hot water at 116°F. for 20, 119°F. for 10 and 121°F. and above for 5 minutes. T.G.

248—Plant Disease Reporter.

- a. JOHANSON, F. D., 1949.—“Nematodes on peaches in Connecticut.” 33 (4), 204-205.
- b. LINDGREN, R. M. & HENRY, B. W., 1949.—“Promising treatments for controlling root disease and weeds in a southern pine nursery.” 33 (5), 228-231.
- c. LAMBERT, E. B., STEINER, G. & DRECHSLER, C., 1949.—“The ‘Cephalothecium disease’ of cultivated mushrooms caused by a nematode (*Ditylenchus* sp.), evidenced by surface development of predaceous fungi.” 33 (6), 252-253.
- d. FENNE, S. B., HENDERSON, R. G., SMITH, T. J. & SHEAR, G. M., 1949.—“Alfalfa-clover disease survey in Virginia.” 33 (6), 255-257.
- e. CRALLEY, E. M. & ADAIR, C. R., 1949.—“Rice diseases in Arkansas in 1948.” 33 (6), 257-259.

(248a) Johanson reports that peach roots from an orchard in Hartford County, Connecticut, showed rotting caused primarily by meadow nematodes (*Pratylenchus* sp.). The tree trunk and branches showed premature hardening-off and enlargement of the lenticels whilst the roots showed not only rotting with sloughing of the cortex but a “witches’ broom” effect. T.G.

(248b) Lindgren & Henry report on attempts to combat root rots of undetermined origin in pine seedlings by the use of a number of chemicals including the fumigants chloropicrin, D-D and ethylene dibromide. Chloropicrin and ethylene dibromide gave good control of the root disease whereas certain fungicides tested failed to give control and the authors conclude from this that nematodes are probably responsible for the disease. Allyl alcohol was found to give striking control of weeds in nursery plots of pine seedlings. T.G.

(248c) Lambert et al. report that a disease of mushrooms with which a fungus referred to the genus *Cephalothecium* is always associated is in fact due to a species of *Ditylenchus* closely related to *D. [=Anguillulina] dipsaci*. The “*Cephalothecium*” is now shown to be *Arthrobotrys superba*, a species which traps nematodes. J.B.G.

(248d) In this brief survey Fenne et al. report very heavy attack by *Ditylenchus* sp. [presumably *D. (=Anguillulina) dipsaci*] on numerous varieties of alfalfa. Many strains were killed out and even “Nemastan” was damaged severely. J.B.G.

(248e) Cralley & Adair mention the occurrence in Arkansas of a disease of rice called "white tip". The symptoms are similar to those of a disease observed in Japan in 1947 which is caused by the nematode *Aphelenchoides oryzae* Yokoo. Experiments carried out at the Rice Branch Station show that the varieties of rice known as Arkansas Fortuna, Nira 43, Bluebonnet and Hill Long Grain are resistant to the disease. The disease is less severe in rice sown early in the season. T.G.

249—Plant Disease Reporter. Supplement.

- a. NANCE, N. W., 1949.—"New or unusual records and outstanding features of plant disease development in the United States in 1948." No. 184, pp. 179-206.

250—Praxis. Berne.

- a. BÜELER, R., 1949.—"Einige Betrachtungen über das neue Mittel gegen Oxyuriasis 'Aloxyn'." 38 (19), 426-428.

(250a) Büeler treated 60 enterobiasis patients with "Aloxyn", a granular preparation of aluminium-*o*-oxyquinoline sulphate. The drug was given in two periods of 5-6 days with an interval of two weeks, the whole course being repeated if necessary. Doses were 1.5 gm. daily for children under six years, 3.0 gm. daily over six years, and 4.5 gm. daily for adults, given in three doses. Clinical cures were effected in 64% after one course and in 22% after repeated courses, results being inconclusive in the remaining 14%. The drug was easily taken and produced no ill-effects. E.M.S.

251—Presse Médicale.

- a. LE DENTU, R., 1949.—"Un ténifuge efficace et économique." 57 (32), 438.

(251a) Le Dentu reports that a chloroform potion, consisting of 4 c.c. chloroform, 30 gm. syrup and 120 c.c. water, has been found a simple and efficacious taeniafuge for use in African colonies where taeniasis is endemic. The dose is mixed fresh for each patient, and is divided into four parts given at $\frac{3}{4}$ -hour intervals on an empty stomach, the patient lying down to prevent the disagreeable effects of nausea and vertigo. In robust persons the whole dose can be administered at once in cases where the divided dose has failed to dislodge the scolex. E.M.S.

252—Proceedings of the American Society for Horticultural Science.

- a. SERR, E. F. & DAY, L. H., 1949.—"Lesion nematode injury to California fruit and nut trees, and comparative tolerance of various species of Juglandaceae." 53, 134-140.

(252a) Serr & Day report that the root lesion nematode *Pratylenchus pratensis* is causing serious injury to fruit and nut trees in California. Affected trees become unthrifty, with die-back of twigs and branches. This is accompanied by more or less extensive injury to the roots in the form of dark-coloured lesions. There is also much damage to feeder roots. Many rootstocks are being tested for signs of resistance to attack and amongst members of the walnut family (Juglandaceae) preliminary tests show that Paradox hybrids (*Juglans hindsii* × *J. regia*) and wingnuts (*Pterocarya* sp.) have a high resistance or are remarkably tolerant to the parasite. T.G.

253—Proceedings. Association of Southern Agricultural Workers.

- a. CHRISTIE, J. R., 1949.—"The nature of resistance in plants to root knot." [Abstract.] 46th Annual Convention (1949), p. 133.
- b. MACHMER, J. H., 1949.—"Soil fumigation for the control of the root-knot nematode in peach, fig and grape plantings." [Abstract.] 46th Annual Convention (1949), pp. 133-134.
- c. CLAYTON, E. E., GAINES, J. G., GRAHAM, T. W. & TODD, F. A., 1949.—"Soil treatments with chemicals for the control of tobacco parasites." [Abstract.] 46th Annual Convention (1949), p. 134.

- d. GRAHAM, T. W., 1949.—"Nematode root rot of tobacco and other crops." [Abstract.] 46th Annual Convention (1949), p. 134.
- e. SMITH, A. L., 1949.—"Soil fumigants for controlling Fusarium wilt and nematodes of cotton." [Abstract.] 46th Annual Convention (1949), p. 135.
- f. WILSON, C., 1949.—"Root-knot of peanuts in Alabama." [Abstract.] 46th Annual Convention (1949), p. 135.
- g. ROSEN, H. R., 1949.—"Nematode injury on small grain seedlings." [Abstract.] 46th Annual Convention (1949), p. 135.
- h. COOPERRIDER, D. E. & GOFF, O. E., 1949.—"Parasitism and production." [Abstract.] 46th Annual Convention (1949), pp. 147-148.

(253a) [This abstract has already appeared in *Phytopathology*, 1949, 39 (6), 495. For abstract see Helm. Abs., 18, No. 105a.]

(253b) [This abstract has already appeared in *Phytopathology*, 1949, 39 (6), 498. For abstract see Helm. Abs., 18, No. 105b.]

(253c) [This abstract has already appeared in *Phytopathology*, 1949, 39 (1), 4-5. For abstract see Helm. Abs., 18, No. 35a.]

(253d) [This abstract has already appeared in *Phytopathology*, 1949, 39 (1), 8. For abstract see Helm. Abs., 18, No. 35c.]

(253e) [This abstract has already appeared in *Phytopathology*, 1949, 39 (6), 499. For abstract see Helm. Abs., 18, No. 105d.]

(253f) [This paper is published in full in *Plant Dis. Reporter*, 1948, 32 (10), 443. For abstract see Helm. Abs., 17, No. 340a.]

(253g) [This abstract has already appeared in *Phytopathology*, 1949, 39 (6), 499. For abstract see Helm. Abs., 18, No. 105c.]

254—Proceedings of the Helminthological Society of Washington.

- a. THORNE, G., 1949.—"On the classification of the Tylenchida, new order (Nematoda, Phasmidia)." 16 (2), 37-73.
- b. ABBOTT, R. T. & HUNTER, III, G. W., 1949.—"Studies on potential snail hosts of *Schistosoma japonicum*. I. Notes on the amnicolid snails *Blanfordia*, *Tricula* and a new genus, *Fukuia* from Japan." 16 (2), 73-86.
- c. HUNTER, III, G. W. & ABBOTT, R. T., 1949.—"Studies on potential snail hosts of *Schistosoma japonicum*. II. Infection experiments on amnicolid snails of the genera *Blanfordia*, *Tricula* and *Fukuia*." 16 (2), 86-89.
- d. CHITWOOD, B. G., 1949.—"Root-knot nematodes"—Part I. A revision of the genus *Meloidogyne* Goeldi, 1887." 16 (2), 90-104.
- e. CHRISTIE, J. R., 1949.—"Host-parasite relationships of the root-knot nematodes, *Meloidogyne* spp. III. The nature of resistance in plants to root knot." 16 (2), 104-108.
- f. ALLEN, R. W. & JONES, L. D., 1949.—"The incidence of ascarids (*Ascaris lumbricoides*) in midwestern swine." 16 (2), 108-112.
- g. BASIR, M. A., 1949.—"A description of the male of *Chitwoodiella ovofilamenta* Basir, 1948 (Nematoda: Thelastomatidae)." 16 (2), 112-114.
- h. BYRD, E. E., 1949.—"*Paradistomum samoensis* n.sp., a new dicrocoeliid from Samoan lizards." 16 (2), 114-117.

(254a) In this taxonomically important and well illustrated paper Thorne erects a new order, Tylenchida, which includes the two superfamilies, Tylenchoidea Chitwood & Chitwood, 1937 and Aphelenchoidea Fuchs, 1937. Only the plant-parasitic and free-living families, subfamilies and genera of the Tylenchoidea are dealt with; the Aphelenchoidea and those members of the Tylenchoidea which are parasites or associates of insects are purposely excluded from treatment. A key to the subfamilies of the Tylenchidae is given. Two new families are erected and defined, namely Neotylenchidae n.fam. and Heteroderidae n.fam. Criconematidae Thorne, 1934 is defined for the first time with a key to its subfamilies, one of which is new, namely Paratylenchinae n. subfam. The subfamily Hoplolaiminae Filipjev, 1934 is emended and *Hoplolaimus uniformis* n.sp. is described

and figured. *Pratylenchinae* n.subfam. is erected and the genus *Radopholus* n.g. is established with *R. similis* (Cobb, 1915) n.comb. as genotype. Under the subfamily Tylenchinae emended diagnoses are given of the following genera and their genotypes, which are described and figured: (i) *Tylenchorhynchus* Cobb, 1913; (ii) *Tetylenchus* Filipjev, 1936 with *T. joctus* n.sp., *T. abulbosus* n.sp. and *T. productus* n.sp.; (iii) *Psilenchus* de Man, 1921 with *P. aberrans* n.sp., *P. gracilis* n.sp., *P. magnidens* n.sp. and *P. striatus* n.sp.; (iv) *Tylenchus* Bastian, 1865; (v) *Ditylenchus* Filipjev, 1934; (vi) *Anguina* Scopoli, 1777. T.G.

(254b) Abbott & Hunter have made a study of the shells, animals and habitats of four Japanese molluscs which are regarded as potential vectors of *Schistosoma japonicum*, viz., *Blanfordia simplex*, *Tricula minima*, *Fukuia kurodai* n.g., n.sp. and *F. multistriata*. A key is provided for the animal characteristics of those known to be vectors and of genera likely to be confused with them. The bibliography includes recent references to relatively inaccessible Japanese and Chinese literature. R.T.L.

(254c) Some cases of schistosomiasis japonica have been reported in Fukien and Ishikawa Prefectures of Japan, but careful search has failed to yield any specimens of the vector *Oncomelania nosophora*. An examination of medical records and of the indigenous population was negative. Specimens of *Blanfordia simplex*, *Tricula minima*, *Fukuia multistriata* and *F. kurodai* were resistant to experimental infection. It is concluded, therefore, that the reports of cases of schistosomiasis from these prefectures were erroneous. R.T.L.

(254d) Chitwood diagnoses the genus *Meloidogyne* Goeldi, 1887, which includes all the forms known as root-knot nematodes (*Heterodera marioni*). He gives the characters which distinguish it from the genus *Heterodera* Schmidt, 1881, namely (i) the body wall in the female never becomes leathery and forms a cyst as it does in *Heterodera*; (ii) the eggs are deposited in a mucoid minutely fibrous mass, never retained within the female body wall as they are in *Heterodera*; (iii) there are two lateral cheeks on the male head while in *Heterodera* the labial region is divided into six sectors by ridges and the annular striations are well defined; (iv) the larval stylet is about 10μ long as compared with $20-29\mu$ in *Heterodera*; (v) the anus in the female is at the edge of the posterior lip of the vulva—its position is variable in *Heterodera* but never there; (vi) *Meloidogyne* species characteristically cause root swellings on suitable hosts and the females tend to live within the roots at maturity, but in *Heterodera* the host does not usually form galls and the females tend to live superficially on the roots. Chitwood then gives full illustrated descriptions of and a key to five species and one variety of *Meloidogyne*, namely *M. exigua* Goeldi, 1887 (type species), *M. javanica* (Treub, 1885) n.comb., *M. incognita* (Kofoed & White, 1919) n.comb., *M. incognita* var. *acrita* n.var., *M. hapla* n.sp. and *M. arenaria* (Neal, 1889) n.comb. Differentiation is based on the various cuticular patterns and lateral ridges in the perineal region of the female, on the stylet knobs of the male being clearly offset or passing smoothly into the stylet, on the length of the stylet and on the distance of the orifice of the dorsal oesophageal gland from the base of the stylet. Type hosts and type localities are indicated. It is pointed out that members of this genus are very adaptable and show considerable morphological variation: Chitwood says "In fact we have not as yet seen two identical specimens. Nevertheless general pattern series and other structures show similarities, and progenies from individual females are relatively consistent both as to morphology and host range." M.T.F.

(254e) The varying resistance to root-knot shown by different plants may depend partly on the ability of the larvae to invade the roots, and this ability seems to vary with different species of *Meloidogyne*. Once within the host the rate of development and the number of eggs laid vary, under optimum temperatures, according to the host resistance. If the plant fails to form giant cells in response to the nematode's secretions the parasite will die. In moderately resistant plants small necrotic areas sometimes appear at the point of invasion, suggesting that the nematode's secretions not only fail to induce the plant to produce giant

cells but actually kill the surrounding tissues. The most susceptible plants are not necessarily the most severely damaged. Christie believes that the most severely injured are plants which are sufficiently resistant to allow such a number of females to mature as will lay just enough eggs to provide a continuous source of infective larvae. When rooted cuttings of *Pelargonium graveolens* were grown for a few months in root-knot-infested soil Christie found a very few small woody galls on the roots, only a few of which contained living parasites, but at the base of the stem several cuttings had developed succulent undifferentiated outgrowths in which were numbers of normal egg-laying females. He thinks that in the roots the larvae were unable to arrest cell differentiation or to stimulate the formation of giant cells, whereas in the stem-base outgrowths, differentiation would not naturally occur. Christie quotes Barrons' hypothesis [for abstract see Helm. Abs., 8, No. 32a] that resistance may be due to chemicals in the roots of resistant plants which counteract the giant-cell-inducing effect of the salivary secretions of the nematodes. This hypothesis could account for all the known facts concerning resistance. Christie says that in any event the reason why some plants are suitable and some unsuitable hosts for a given species of *Meloidogyne* lies in the fact that they react differently to a given stimulus. M.T.F.

(254f) The faeces of 505 pigs from various States of the Middle West were examined by the direct smear method at the stockyards of a large meat-packing establishment in Chicago: 35% of the pigs were found to be infected with *Ascaris lumbricoides*. R.T.L.

(254g) Basir's original description of the oxyurid nematode *Chitwoodiella ovofilamenta* was based on female specimens only. In the present paper he describes and figures the male of the species from the intestine of the mole cricket, *Scapteriscus vicinus* Scudder. T.G.

(254h) A dicrocoeliid named *Paradistomum samoensis* n.sp. is described from *Emoia nigra* and *E. samoensis* from the island of Tutuila. It resembles *P. trachysauri* but has smaller suckers, ovary and testes. The vitellaria are more posterior in distribution and the uterus is more extensively coiled in the region of the ventral sucker. R.T.L.

255—Proceedings of the Society for Experimental Biology and Medicine.

- a. LARSH, Jr., J. E. & NICHOLS, J., 1949.—"Effect of adrenalectomy on eosinophil response of rats infected with *Trichinella spiralis*." 71 (4), 652-654.

(255a) Infection with various doses of *Trichinella spiralis* did not induce a high eosinophilia in white mice or rats. Rats also failed to show a striking response after reinfection. The number of circulating eosinophiles in infected rats was only slightly increased by adrenalectomy. R.T.L.

256—Proceedings. Soil Science Society of Florida.

- †a. STEINER, G., 1949.—"Nematodes and the life association of the soil." Year 1942, 4B, 7-10.
 †b. HUME, H. H., 1949.—"Symposium: nematode control under Florida conditions. Introduction." Year 1942, 4B, 71.
 †c. STEINER, G., 1949.—"Plant nematodes the grower should know." Year 1942, 4B, 72-117.
 †d. BRATLEY, H. E., 1949.—"Weed host plants of the [root-knot] nematode found in the three year tobacco rotation." Year 1942, 4B, 118-120.
 †e. WATSON, J. R., 1949.—"Natural control of root knot." Year 1942, 4B, 121-122.
 †f. MILLER, R. L., 1949.—"Preliminary observations on the use of dichloroethyl ether in the control of nematodes." Year 1942, 4B, 123-125.
 †g. TAYLOR, A. L., 1949.—"Chemical control of plant parasitic nematodes in the soil." Year 1942, 4B, 126-140.
 †h. TOWNSEND, G. R., 1949.—"The control of nematodes in the organic soils of the Everglades." Year 1942, 4B, 141-143.
 †i. SMITH, F. B. & BATISTA, J. W., 1949.—"The nematode problem from the soil microbiological standpoint." Year 1942, 4B, 144-147.

† Paper presented at the 4th Annual Meeting, Soil Science Society of Florida, Gainesville, December 18-19, 1942.

(256a) Steiner emphasized the need for further investigations into the biological relationships of the soil in a wide sense and, in particular, into the part played by nematodes not only as parasites of plants but into their many and varied activities as members of the complex soil community. He drew attention to the part they possibly play in the spread of bacterial and fungal pests of plants and to the fact that some of them naturally prey on other nematodes whilst many also are preyed upon by fungi provided with special snaring or trapping devices. T.G.

(256c) Steiner draws attention to the many different kinds of nematodes which play a part in the biology of the soil and considers them especially as parasites of plant roots. He points out the benefits accruing from soil sterilization by steam and chemical fumigants and attributes these largely to the destruction of harmful nematodes. He devotes particular attention to the root-knot nematode, *Heterodera marioni*, discussing many aspects of its biology and its host-parasite relationships, including resistant hosts such as *Crotalaria spectabilis* and *Solanum grandiflorum*, in both of which the seedlings may be injured but not the adult plants. Some pages are given to accounts of sedentary nematode parasites including certain cyst-forming species of *Heterodera*, amongst which he describes and gives photographs of *H. weissi* n.sp., which occurs on the roots of *Polygonum pennsylvanicum* and other *Polygonum* spp. in the U.S.A., east of the Rocky Mountains. He reports *Rotylenchulus reniformis* from the roots of *Jacquemontia tamnifolia* and *Cassia tora*, grown in the U.S.A. Another section of the paper is given to accounts of migratory nematodes amongst which the following new forms are figured and described, generally in short foot-notes: *Criconemoides citri* n.sp., from the roots of sour orange; *Criconema civellae* n.sp., from roots of *Citrus grandis*; *Paratylenchus elachistus* n.sp., from roots of ramie (*Boehmeria nivea*); *Pratylenchus leiocephalus* n.sp., from roots of peanut (*Arachis hypogaea*) and maize (*Zea mays*). In addition, *Dolichodorus heterocephalus* Cobb, 1914, known hitherto only from freshwater sites in the U.S.A., is reported from celery roots, and an entirely new form, *Belonolaimus gracilis* n.g., n.sp., is figured and briefly diagnosed; morphologically it is somewhat related to *Dolichodorus* and was found in roots of slash and long-leaf pine and maize roots. T.G.

(256d) Bratley states that on plots used for rotation experiments in the cultivation of tobacco at the Agricultural Experiment Station, Gainesville, Fla., roots of weeds were examined for galls caused by the root-knot nematode, *Heterodera marioni*. The results are set out in a table in which the total number of plants of each species collected and the number showing galls are given. During the three years that the examinations were made the incidence of galling varied considerably and on only three of the plants listed were galls found in each year. The incidence of galls was as high as 53.8% in one species and as low as 0.1% in three species. T.G.

(256e) Watson states that at the Agricultural Experiment Station, Gainesville, Fla., marked success in the control (not eradication) of root-knot has been obtained by the use of vegetable mulches applied to the surface of the soil around such plants as okra, peas, lettuce and comparatively tall annuals. Plants grown in pots watered with an aqueous extract of mulch material grew better than those not receiving such an extract. Practically any vegetable matter which will decay is suitable for use as a mulch and appears to be as effective when applied 1 to 2 inches deep as at a greater depth. The beneficial effects are said to persist for nearly a year after the coarse mulch has been removed. For eradication of the parasite from seed-beds thorough fumigation with hydrocyanic acid gas is recommended; this is achieved by applying a solution of sodium cyanide followed by ammonium sulphate. Not only are the eelworms killed by this means but the treatment has a considerable fertilizer value. T.G.

(256f) Dichloroethyl ether has been used as an insecticide for many years. Miller has secured apparently complete control of root-knot in a small preliminary trial, using 2 fl. oz.

in 2 gal. water per sq. yard, watered on the soil. This penetrated 6 to 8 inches and did not affect the germination of okra seed immediately planted. Growth of plants was normal, compared with stunted controls. This emulsion can even be applied to many growing plants, provided it is washed off the tops. B.G.P.

(256g) Taylor comments in turn on the following substances as being the only ones known to be of some nematocidal value: chloropicrin, carbon disulphide, ethylene dichloride, methyl bromide, sodium cyanide with ammonium sulphate, calcium cyanamide, urea, dichloroethyl ether. [The date of the meeting at which this paper was read, 1942, explains the absence of reference to D-D mixture, ethylene dibromide etc.] Tobacco dust with barium salts was found useless. Rates and methods of application are given for each substance, together with the approximate cost per acre. B.G.P.

(256h) Townsend discusses practical measures which can be used for the control of root-knot infestations on crops grown on the Everglades soils of Florida. He recommends the use of a number of resistant crops such as maize for grain and fodder, sorghum, millet, grasses and cereals for grain and as soiling crops, velvet beans, crotalaria, Iron and Brabham cowpeas and beggarweed. Fallowing land for the winter followed by planting to resistant crops in the summer can be practised. Where cash crops need to be grown on certain lightly infested lands such crops as lettuce, cabbage, carrots and celery which are relatively tolerant hosts should be grown in the winter, followed by resistant crops in the summer. Flooding is mentioned as an aid to control. The problem is largely an economic one in that it may be cheaper to fallow land or put it down to a resistant crop for a year rather than spend large sums of money on chemical treatments. T.G.

(256i) Smith & Batista briefly review the question of the interrelationship of micro-organisms in the soil, and cite a number of instances from the literature of some measure of biological control over root-parasitic nematodes, for example, from the ploughing-in of sweet clover or the application of large amounts of organic matter to the soil. Papers by Linford and Drechsler on the controlling effect of nematode-trapping fungi are mentioned. T.G.

257—Proceedings of the United States National Museum.

- a. PEARSE, A. S., 1949.—“Observations on flatworms and nemertean collected at Beaufort, N.C.” 100 (3255), 25-38.

(257a) Of 32 trematodes from 22 species of marine fishes collected by Pearse at Beaufort, N.C., eight are new, namely *Ancyrocephalus chaetodipteri* n.sp., *Monocotyle pricei* n.sp., *Tagia micropogoni* n.sp., *Microcotyle otrynteri* n.sp., *M. peprili* n.sp., *Lepocreadium archosargi* n.sp., *L. micropogoni* n.sp. and *Bicornuata caretta* n.g., n.sp. from *Caretta caretta*. The last named is type of a new genus of Anaporrhutinae in the family Gorgoderidae. R.T.L.

258—Public Health Reports. Washington.

- a. BROOKE, M. M., DONALDSON, A. W. & MITCHELL, R. B., 1949.—“A method of supplying cellulose tape to physicians for diagnosis of enterobiasis.” 64 (28), 897-901.
b. NOLAN, M. O. & BERRY, E. G., 1949.—“Preliminary field trials with laboratory-tested molluscacides.” 64 (30), 942-949.

(258a) A piece of paper is stuck on to one end of a 4-in. strip of transparent cellulose tape $\frac{3}{4}$ in. wide, or $\frac{1}{2}$ in. of tape is folded back to form a tab. The strip is then pressed on to a 3 in. by 1 in. microscope slide and looped over the end so that a small portion adheres to the undersurface. For use the longer portion of the tape is pulled up by the tab and looped over the end of the slide to expose the sticky surface. The perianal region of the patient is touched several times with the sticky surface. This is then folded back on to the slide and smoothed. R.T.L.

(258b) In preliminary field trials, the following ten organic compounds were tested as potential molluscicides: *N*-cyclohexyl-2,3,4,6-tetrachlorophenoxyacetamide; benzene-thiol ester of acetic acid; 1-bromo-2,4-dinitrobenzene; 1-dodecylguanidine acetate; 2,3-dichloro-1,4-naphthoquinone; 2-methyl-1,4-naphthoquinone; pentabromophenol; pentachlorophenol, Na salt, monohydrate ("Dowicide G"); 2,3,4,6-tetrachlorophenol ("Dowicide No. 6"), and *S*-(β -[*p*-*tert*-octylphenoxy- β -ethoxy]ethyl)-thiopseudourea, HCl, hemihydrate. The compounds were applied in the form of an emulsion or acetone solution in concentrations of ten parts per million to ponds, borrow pits, shallow marshes, or roadside ditches, where the predominant snail was *Tropicorbis obstructus donbilli*. Members of this planorbid genus are closely allied both morphologically and ecologically with *Australorbis glabratus*, the principal intermediate host of *Schistosoma mansoni* in the Western Hemisphere. Pentabromophenol and pentachlorophenol were the only compounds showing promising molluscicidal activity, all the snails collected after three days from the treated area being dead. E.M.S.

259—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. BIAGGI, N. & PIRAZZI, R., 1949.—"The effect of chloramine on the miracidia of *Schistosoma mansoni*." 24 (3), 246-250. [Also in Spanish pp. 251-255.]

(259a) Chloramine, 0.45 parts per million of water, inactivated the miracidia of *Schistosoma mansoni* in 7.2 to 8 minutes, and in concentration of 0.89 p.p.m. in 5½ minutes. The effects of formula "C" water (used in preparing the chloramine solutions) and of river water on the viability of miracidia are tabulated. R.T.L.

260—Queensland Agricultural Journal.

- a. MOULE, G. R. & JACKSON, M. N. S., 1949.—"Lambing losses." 69 (4), 235-243.

(260a) Phenothiazine drenching within a fortnight or so of lambing is given as one of the less common causes of abortion or of lambs being born dead in some flocks in New South Wales. R.T.L.

261—Records of the Indian Museum.

- a. CHAUHAN, B. S., 1949.—"Notes on some helminths in the collection of the Zoological Survey of India." Year 1947, 45 (2/3), 133-137.

(261a) These are brief notes on some helminths obtained from poultry, snakes and freshwater fishes. In some instances the local incidence is extended. The species of several of the forms were not determined. R.T.L.

262—Report of the Department of Agriculture, New Zealand.

- a. BARRY, W. C., 1949.—"Live-stock Division. Health of live-stock." Year 1948-49, pp. 46-52.
b. FILMER, J. F., 1949.—"Animal Research Division. Parasitology." Year 1948-49, pp. 88-90.

(262a) Helminth infection in young calves was prevalent on the west coast of the South Island, New Zealand, in 1948 to 1949. In sheep a minimum of parasitic trouble was experienced. This is attributable to the routine use of phenothiazine. Kidney-worm infection was detected in two out of 21 sows examined at the Wallaceville Laboratory. R.T.L.

(262b) *Haemonchus contortus* is fairly widespread throughout the North Island, New Zealand, but few heavy infections were noted. In Southland this parasite was less frequent and the infections were lighter. *Ostertagia* infections were widespread but seldom severe. This species extends further south than *Haemonchus contortus*. Studies on the production

of immunity in worm-free lambs by repeated dosing with infective larvae of *Haemonchus contortus* showed striking differences in the number and size of the worms in the infected and control animals. That a smaller number developed in 3-months-old lambs as compared with those 15 months old indicates the importance of examining more than one criterion of worm resistance in such trials. Liver-fluke occurred in small areas in the Bay of Plenty on farms near Whakatane with miles of watercourses, where attempts to control the vector *Myxas ampulla* would prove difficult and uneconomical. R.T.L.

263—Report of the Department of Agriculture and Stock, Queensland.

- a. LEGG, J., 1949.—“Report of the Animal Health Stations.” Year 1948-49, pp. 55-60.

(263a) From the Yeerongpilly Station, L.G. Newton reports on faecal samples of cattle received from dairy farms in the Pimpama, Beaudesert and Townsville areas and from two beef cattle herds in the Gladstone district and shows that overall infections are gradually built up until the calves are 6-8 months old and then fall to a low level. Infective larvae of *Haemonchus contortus*, *Bunostomum phlebotomum*, *Oesophagostomum (Bosicola) radiatum* and *Cooperia* spp. are present on the pastures throughout the year, but late summer and autumn are the seasons of heaviest infestation. *Trichostrongylus* spp. and *Ostertagia* spp. are of little potential danger. Severe parasitism in dairy calves appears to be associated with poor nutritional standards and overcrowded paddocks. *Cysticercus bovis* was observed in the heart of a cow from the Kingaroy-Gympie area: this is the first time it has been definitely identified in Queensland. Very heavy infestations with helminths were encountered in pigs. The species noted were *Metastrongylus apri*, *Ascaris lumbricoides*, *Hyostrongylus rubidus*, *Oesophagostomum dentatum* and *Trichuris* spp. *Gongylonema* spp. and *Acuaria spiralis* were present in fowls from the Townsville area. R.T.L.

264—Revista Brasileira de Biologia.

- a. RUIZ, J. M., 1949.—“Considerações sobre o gênero *Choledocystus* Pereira & Cuocolo, 1941 (Trematoda, Plagiorchiidae).” 9 (2), 167-174.
b. FREITAS, J. F. TELXEIRA DE & LENT, H., 1949.—“Nova *Diofilaria* parasita do aparelho circulatório de aranha (Nematoda, Filarioidea).” 9 (3), 377-380.

(264a) Ruiz has examined considerable helminth material from *Bufo marinus* in São Paulo and has come to the conclusion that *Glypthelmins elegans*, *Choledocystus eucharis* and *C. vesicalis* should be regarded as synonyms of *C. elegans* which is the type species of the genus *Choledocystus*, while *C. intermedius* is the only other species. He gives a full description of this genus, stressing the morphological structures which differentiate it from *Plagiorchis* and other members of the Plagiorchiidae. P.A.C.

(264b) *Diofilaria spectans* n.sp. from the right ventricle of the heart and the pulmonary artery of *Pteronura brasiliensis* is distinguished especially in the distribution of the genital papillae. The males measure 96-110 mm. and the females 140-190 mm. in length. It resembles *D. immitis* and *D. freitasi* in the size and proportions of the spicules. R.T.L.

265—Revista Brasileira de Medicina.

- a. SOUZA COELHO, R. DE, 1949.—“O sintético acridínico no tratamento da teníase.” 6 (1), 54-55.

(265a) Souza Coelho outlines the work of Lindley on the use of the synthetic acridine “Metoquina” against taeniasis in man, and gives its posology, mode of administration, efficacy and secondary reactions. E.M.S.

266—Revista Ibérica de Parasitología.

- a. LÓPEZ-NEYRA, C. R., 1949.—"La parasitología humana en el Marruecos español." 9 (4) 373-443. [English summary pp. 429-430.]

(266a) In a section on helminths, López-Neyra summarizes previously published work on helminths in man in Spanish Morocco. The species hitherto recorded are *Taenia solium*, *T. saginata*, hydatid, *Dicranotaenia* [*Hymenolepis*] *nana*, *Schistosoma haematobium*, *Ascaris lumbricoides*, *Trichuris trichiura*, *Enterobius vermicularis*, *Strongyloides stercoralis*, *Onchocerca volvulus* (possibly), and imported cases of *Loa loa* and *Wuchereria bancrofti*. R.T.L.

267—Revista de Paludismo y Medicina Tropical. Mexico.

- a. ISITA S., L., 1949.—"Estudios coproparasitoscópicos en una comunidad escolar de México D.F." 1 (1), 23-40.

(267a) 2,770 students from various Mexican States including 1,771 from the Distrito Federal were examined in Mexico City by Faust's concentration method. The students comprised 2,290 men and 480 women, and ranged in age from 14 to 22 years. Helminth infections were found in 539 faecal samples, as follows: *Trichuris* in 228 (8.2%), *Hymenolepis nana* in 180 (6.1%), *Ascaris* in 119 (4.3%), hookworms in 85 (3%), *Enterobius* in 22 (0.9%), *Taenia* spp. in 14 (0.5%), *Strongyloides stercoralis* larvae in 8 (0.3%). These indices are compared with those found in children in the Distrito Federal by Bayona [for abstract see Helm. Abs., 16, No. 90a]. Tables show the variation in incidence of *Hymenolepis nana*, *Ascaris* and hookworms in students from the various States. E.M.S.

268—Revue de Médecine Vétérinaire. Lyon et Toulouse.

- a. BRIZARD, A. & EUZÉBY, J., 1949.—"Un cas de dermatose vermineuse du chien." 100, 82-86.

(268a) A dermatitis in an 8-months-old English setter is described and attributed to invasion by the larvae of *Rhabditis strongyloides*. These larvae measured 516-584 μ in length by 18 μ in width. The cuticle was very finely striated. The mouth had indistinct lips. The oesophagus had two swellings of which the second had a valvular apparatus which differentiated it from that of the larva of hookworm and from microfilariae. R.T.L.

269—Rivista di Parassitologia.

- a. AUSTONI, M. & BOVO, G., 1949.—"Coccidiosi umana da *Isospora belli* (Wenyon) in anchilostomiasico." 10 (3), 143-152. [English & French summaries p. 151.]
b. BATTELLI, C., 1949.—"Ricerche parassitologiche sui muridi di Asmara." 10 (3), 159-165. [English & French summaries p. 165.]

(269a) Austoni & Bovo describe a case of mixed infection with *Ancylostoma duodenale* and *Isospora belli*. It is concluded that the symptoms can be attributed to the hookworm and to the effects of treatment with chloroform and eucalyptus in castor oil. E.M.S.

(269b) In the rats and mice examined by Battelli in Asmara were *Cysticercus fasciolaris*, *C. cellulosae*, *Hymenolepis diminuta*, *H. nana* var. *fraterna*, and the plerocercoid of *Diphyllorhynchus erinacei*. R.T.L.

270—Science.

- a. TALIAFERRO, W. H., WOOLRIDGE, R. L. & BENDITT, E. P., 1949.—"The effect of protein depletion on acquired immunity in trichinosis." [Abstract of paper presented at the 1949 Annual Meeting of the National Academy of Sciences.] 109 (2835), 443.
b. VAN CLEAVE, H. J. & LYNCH, J. E., 1949.—"Preliminary report on the circumpolar distribution of *Neoechinorhynchus rutili* (Acanthocephala) in fresh water fishes." 109 (2835), 446.
c. ALICATA, J. E. & BURR, G. O., 1949.—"Preliminary observations on the biological effects of radiation on the life cycle of *Trichinella spiralis*." 109 (2841), 595-596.

(270a) The immunity which developed in rats kept on a low-protein diet for 33 days or more before experimental infection with *Trichinella spiralis* was lower than that acquired

by rats on an adequate diet. The antibody active against the adult worms and that active against the larvae were both reduced, but when the low-protein diet was commenced seven days prior to infection only the antilarval antibody was reduced. The adults liberate antigen before protein depletion while the larvae only do so after. In the animals on a low-protein diet the mononuclear accumulations were smaller and eosinophiles were fewer than in those on adequate diet. R.T.L.

(270b) The identity has been established of *Neoechinorhynchus rutili* from fresh-water and migratory fishes in Sweden, Finland and Central Europe with those from Wisconsin, Washington, Alaska and various regions in Canada, including specimens from within the Arctic Circle of the Canadian Northwest Territories. R.T.L.

(270c) Gamma radiation estimated at 2,000 r. for each 24 hours when applied to 1.0 gm. of trichinous rat flesh enclosed in a cellophane wrapping had no lethal effect on the larvae nor did it prevent them from development to adults in white rats. When continued for four days, 12-86% of the female worms were sterile. Five days of continuous irradiation increased the sterility to 43-100%. Irradiation for six days resulted in sterility in about 60-100% of the female worms. Those worms which escaped sterility produced infective embryos. The irradiation caused vesiculations of the body wall besides affecting the reproductive tissue. R.T.L.

271—Semaine des Hôpitaux de Paris.

- a. LIVIERATO, S., DANOPOULO, E. & LOGOTHETOPOULO, J., 1949.—"De la première apparition de la trichinose en Grèce. (Observations cliniques et de laboratoire.)" 25 (2), 51-52.

(271a) The small epidemic of trichinosis which occurred in the village of Keratea (Attica) in 1946 was the first outbreak in Greece to be reported. Its origin was traced to a pig reared in the village. It had been brought from eastern Macedonia but probably came originally from Bulgaria, where trichinosis in pigs is very common. R.T.L.

272—South African Medical Journal.

- a. GELFAND, M., 1949.—"Schistosomiasis of the female genital tract." 23 (14), 255-257.
b. ALVES, W., 1949.—"Miracil D in urinary bilharziasis." 23 (22), 428-431.

(272b) Alves reports on the treatment with Miracil-D of 75 young adult Africans suffering from urinary bilharziasis. In group I, 20 patients were dosed twice daily for three days and received 60 mgm. per kg. body-weight. In Group II, 20 patients were dosed once daily for four days and received 60 mgm. per kg., while 35 in Group III were treated twice daily for five days and received 75 mgm. per kg. At the end of a month only three patients in Group II were passing "living and hatchable eggs". Miracil-D appears non-toxic in the dosage at which it was administered. It is extremely unpleasant to take and is definitely a gastro-intestinal irritant. Patients complained of nausea, discomfort and vomiting. It is hoped that this drug may facilitate synchronized mass treatment and snail destruction campaigns. P.L.Ler.

273—Southern Medical Journal.

- a. DE LA RIVA, G. E., 1949.—"Contribution to the study of tropical eosinophilia." 42 (5), 429-434. [Discussion pp. 434-435.]

274—Tasmanian Journal of Agriculture.

- a. PHILP, R. C. T., 1949.—"Liver fluke and black disease." 20 (1), 17-21.
b. RYAN, A. F., 1949.—"Worms in calves." 20 (2), 91-93.
c. PHILP, T., 1949.—"Hydatids." 20 (2), 113-115.

(274a) Philp sketches the relation of acute liver-fluke infection to "black disease" in sheep. While treatment with carbon tetrachloride must diminish the risks of reinfection

with liver-fluke, it can have no immediate influence in preventing "black disease" as this drug has no effect on the immature flukes which contribute to the appearance of "black disease". In Tasmania, the elimination of the molluscan vector by copper sulphate is limited by the high rainfall and sudden floods, although permanent backwaters and swamps could be satisfactorily treated.

R.T.II

(274b) Ryan gives a brief popular account of the main helminth parasites responsible for losses in calves in Tasmania. Their life-cycles and the methods to be used to combat their effects are outlined.

R.T.II

(274c) As the incidence of hydatid in man has increased in recent years in Tasmania, Philp gives a brief popular account of the role of the dog in the spread of the disease, setting out the dosages of arecolin hydrobromide to be administered to dogs of different breeds, and outlines the precautions which should be taken to avoid infection.

R.T.II

275—Tierärztliche Umschau.

- a. REINHARDT, 1949.—"Was empfehlen Sie gegen Spulwürmer bei Saugkälbern?" [Questions & Answers.] 4 (1/2), 24.
- b. MAKSIĆ, D., 1949.—"DDT (Dichlor-diphenyl-trichloräthan) als Wurmmittel beim Pferd (Kurze Mitteilung)." 4 (7/8), 105-106.
- c. REINHARDT, 1949.—"1. Können Sie ein gutwirkendes Mittel gegen Oxyuren beim Menschen angeben? 2. Kann Phenothiazin Hunden gegeben werden, in welcher Form und Dosierung?" [Questions & Answers.] 4 (7/8), 108.
- d. REINHARDT, 1949.—"Gibt ein wirksames Mittel gegen Spulwurmbefall bei Katzen, das nicht erbrochen wird?" [Questions & Answers.] 4 (9/10), 139.

(275b) Since D.D.T. has proved so effective against ectoparasites and since experiments showed that repeated doses of 300-500 gm. pure D.D.T. were well tolerated by horses, Maksic has tested the substance as an anthelmintic. Without giving any details he reports simply that "the results of the experiments showed that the effect is slight and unsatisfactory". The suggestion is made that gammexane should also be tested as an anthelmintic.

A.E.F.

276—Tijdschrift voor Diergeneeskunde.

- a. ROMIJN, C., 1949.—"Het rode bloedbeeld van paarden, lijdende aan strongylose." 74 (3), 133-138. [English summary p. 138.]
- b. BOOGAERDT, A., 1949.—"Iets over gebruik en werking van Robasfer." 74 (5), 270.

(276a) Romijn reports on the red blood picture of 16 horses suffering from strongylosis as shown by faecal examination. Approximately 50 c.c. of blood were collected from the jugular vein for examination. The various determinations tabulated include number of erythrocytes, cell volume, erythrocyte volume, volume-index, haemoglobin content, Hb content per 100 c.c. erythrocytes, saturation-index, Hb content per erythrocyte, colour-index, erythrocyte diameter, erythrocyte thickness, thickness-index, diameter to thickness ratio, oxygen capacity (vol. %), total iron content, plasma-iron content, specific oxygen capacity and plasma-protein content. A distinct anaemia of the normocytic and normochromous type was detected in five animals. In the remaining eleven animals the most marked deviations from the normal were microcytosis and spherocytosis. Romijn considers that the relation of the red blood picture to the degree of infestation with strongyles should be investigated.

P.L.IER.

(276b) Boogaerdt states that he has used "Robasfer" with success for some years in the treatment and control of lungworm infestations [evidently in cattle]. He had good results by intratracheal injections, as recommended in the text-books, only when the animals were stalled and well fed. "Robasfer" is administered subcutaneously and is, according to the manufacturers, a combination of the Bayer products "Aricyl" and "Antimosan".

to which copper has been added. The subcutaneous injection of 20 c.c. "Robasfer" into 24 cows, not affected with lungworms but showing manifestations of pica due to hypocupraemia, resulted in a less rapid decline of milk yield than was evident in untreated animals in five other herds. P.L.ler.

277—Transactions of the American Microscopical Society.

- a. KRUG, E. S. & MAYHEW, R. L., 1949.—"Studies on bovine gastro-intestinal parasites XIII. Species diagnosis of nematode infections by egg characteristics." 68 (3), 234-239.
- b. TODD, A. C., INSKO, Jr., W. M., KELLEY, G. W. & HANSEN, M. F., 1949.—"Aggregate worm infections and growth of broilers." 68 (3), 256-260.
- c. LINCICOME, D. R. & VAN CLEAVE, H. J., 1949.—"Review and redescription of the acanthocephalan species, *Leptorhynchoides thecatus*." 68 (4), 304-313.
- d. OLSEN, L. S., 1949.—"A new species of oxyurid nematode from a pika, *Ochotona princeps figginsi*." 68 (4), 337-341.

(277a) Krug & Mayhew deal with the characteristics of the eggs of bovine gastro-intestinal nematodes. They review the literature briefly and describe their procedure of measuring the eggs secured by dissection of preserved worms and from faecal matter. The size, shape and nature of the shell are similar in the eggs of the genera *Cooperia*, *Ostertagia* and *Trichostrongylus*. It is difficult to differentiate between the eggs of *Haemonchus* and *Oesophagostomum*. In *Bunostomum* the egg shell is relatively much thicker than in the others, more or less rough on the outer surface, and in freshly passed faeces cell division is less advanced than in the eggs of the other species. P.L.ler.

(277b) Todd et al. find that experimental infection of 7-weeks-old chickens with ova of *Ascaridia galli* and *Heterakis gallinae* may cause retardation of growth, the amount of retardation varying directly with the intensity of the infection. Both species penetrate the mucosa of the host during their maturation and this period of penetration coincides, in experimental infections, with actual loss of weight. P.A.C.

(277c) *Leptorhynchoides thecatus*, an acanthocephalan parasite of the caeca and small intestine of many species of fish, is a very variable species morphologically. The proboscis hooks are generally arranged in twelve longitudinal rows and the bases of the hooks are covered with distinctive cuticular sheaths. The theca of the hooks varies considerably both as to size and extension. Some of the patterns appear to be concentrated in various geographical foci and may in time become distinct species, but the authors recommend that a single species only should be recognized. P.A.C.

(277d) Olsen describes *Cephaluris coloradensis* n.sp., an oxyurid parasite of the caecum and large intestine of the pika, *Ochotona princeps figginsi*, in Colorado. The species can be clearly differentiated from the type and only other species of the genus, *C. ochotoniae*, by the relatively large eggs and by the rudimentary spicule in the male, as well as by other characters. P.A.C.

278—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. BLOSS, J. F. E., 1949.—"Filaria in the Sudan." [Correspondence.] 43 (2), 236-238.

(278a) Bloss comments on the article on filariasis in the Sudan by Woodman [for abstract see Helm. Abs., 18, No. 121b]. In Bloss' experience *Chrysops* spp. are a common nuisance in the most thickly populated part of Zande area in the Sudan. The bite of these flies may not be noticed. The incidence of onchocerciasis in the Sudan is serious but this and other Filaridae are not endemic in the "uninhabited" area lying south of the "Raffile Rapids" [Woodman's map reference] between the Sueh and Naam rivers. It exists along the Ethiopian border from "Pibor" to "Melut". The infection rate in skin scrapings is

30% and *Simulium damnosum* is present. Eye lesions are correlated with intensity of *Onchocerca* infection. Although *Loa loa* as a tissue parasite might be found in lam hydrocoeles it does not necessarily cause them.

R.T.

279—United States Naval Medical Bulletin.

- a. HORTON, Jr., S. H., 1949.—“Creeping eruption. Report of a case with Loeffler's syndrome.” 49 (4), 703-706.

280—Verhandlungen der Deutschen Zoologen in Kiel.

- a. GOFFART, H., 1949.—“Zur Nematodenfauna unterirdischer Gewässer.” Year 1948, No. 44 pp. 308-312.

(280a) Goffart reports on the free-living nematodes found in a number of samples collected from the underground waters of caves. Some of the species are identified as typically terricolous and others as aquatic forms, and amongst a considerable number listed the following are new to science, viz., *Onchulus noll* n.sp., *Monhystera stadleri* n.sp., *M. amplicornis* n.sp., *M. tenuissima* n.sp. and *Procriconema micoletzkyi* n.sp. [No descriptions are given.]

T.O.

281—Veterinariya.

- a. KRYUKOVA, K. A., 1949.—[Sodium fluoride—new anthelmintic for ascariasis in swine.] 26 (1), 25-27. [In Russian.]
- b. DAVIDOV, Y., 1949.—[Systemic reactions of the horse in septicemia developed during onchocerciasis.] 26 (2), 23-26. [In Russian.]
- c. VERTELETSKI, L. L., 1949.—[Improving the complex measures for control of helminthiasis.] 26 (4), 4-5. [In Russian.]
- d. KRASTIN, N. I., 1949.—[Epizootology of thelaziasis in cattle, and biology of *Thelazia rhodesi* (Desmarest, 1827).] 26 (4), 6-8. [In Russian.]
- e. KLESOV, M. D., 1949.—[Epizootology and therapy of bovine thelaziasis.] 26 (4), 9-12. [In Russian.]
- f. PANASYUK, D. I., 1949.—“Hexachlorethane as anthelmintic in ascariasis, strongylosis and trichonemiasis of horses.” 26 (4), 13-14. [In Russian.]
- g. BELYAEV, S. M., 1949.—[Carbon tetrachloride.] 26 (4), 15-17. [In Russian.]
- h. KONONOV, A., 1949.—[Special features of the course of piroplasmosis and nuttalliasis in horses with heavy worm burdens.] 26 (4), 20. [In Russian.]
- i. DEMIDOV, N. V. & ORLOVA, N. V., 1949.—[The pig disease, hepatitis cysticercosa.] 26 (4), 29-30. [In Russian.]
- j. OLDENBORGER, A. A., 1949.—[Use of carbon tetrachloride as an anthelmintic in horses.] [Abstract.] 26 (4), 42. [In Russian.]
- k. BILDUSHKINOV, A. P., 1949.—[Practical applications of turpentine oil in Rhinestrus Parascaris and Parafilaria infections in horses.] [Abstract.] 26 (4), 42. [In Russian.]
- l. DOMETS, N. P., 1949.—[Ichthyol-iodoform emulsion in cod liver oil against thelaziasis.] [Abstract.] 26 (4), 42-43. [In Russian.]
- m. TRUSOV, I. A., 1949.—[Sulphantrol as a radical remedy for bovine thelaziasis.] [Abstract.] 26 (4), 43. [In Russian.]
- n. TURUNOVA, L. E., 1949.—[Treatment of muelleriasis of sheep and goats with muriate of emetin.] [Abstract.] 26 (4), 43. [In Russian.]
- o. BOEV, S. N. & OKOROKOV, M. N., 1949.—[Anthelmintic treatment of pregnant ewes.] [Abstract.] 26 (4), 43. [In Russian.]
- p. KAYUKOV, S. G., 1949.—[Anthelmintic treatment of fowls by carbon tetrachloride injection into the crop.] [Abstract.] 26 (4), 43. [In Russian.]
- q. EFREMOV, G. K., 1949.—[Use of phenothiazine against parascariasis in bears.] [Abstract.] 26 (4), 43-44. [In Russian.]
- r. PETROCHENKO, V. I., 1949.—[Therapy of Polymorphus infestation in ducks.] [Abstract.] 26 (4), 44. [In Russian.]

(281a) A large number of pigs ranging from 2½ to 6 months old, infected with *Ascaris lumbricoides*, were starved for 24 hours before treatment and four hours after treatment. Sodium fluoride was administered in doses of 0.003, 0.05, 0.08, 0.1-0.15 and 0.2 gm. per

g. body-weight. The dose of 0.1 gm. per kg. body-weight reduced the intensity of infestation by 99.6% and a complete cure was effected in 90% of the pigs treated. The treatment was most effective when given individually mixed with food. Doses of 0.15 and 0.3 gm. had no toxic influence, but after 0.6 gm. the animals were ill for three days. There were no deaths. C.R.

(281b) According to Davidov, septicaemia developing during onchocerciasis is of chronic character, and the products of metabolism of the parasite, bacterial toxins and products of disintegration of foreign protein appear in the blood, leading to a general intoxication. The capillary system seems to be particularly affected. C.R.

(281c) Verteletski stresses the necessity of control of helminth infections, particularly ascariasis, monieziasis, dictyocauliasis, parascariasis and strongyloidiasis in domestic animals according to the existing regulations in the Soviet Union. C.R.

(281d) The larvae of *Thelazia* concentrate in the eye and nose secretion where they are collected by the intermediate host, *Musca convexifrons*. The development of larvae in the fly takes approximately one month. Infection of cattle takes place when the infected fly touches the eye secretion or the conjunctiva. The worm reaches maturity in about two months. Krastin recommends tar as a fly repellent placed near the internal angle of the eye. C.R.

(281e) This study by Klesov of the epizootology of *Thelazia rhodesii* in a very large number of abattoir cattle showed that the lowest incidence of eye infection was in April (10%) and the highest in January (67.3%). In one group under experiment the lowest incidence was in May (7%). The infection in April and May consists of mature worms only. June is the month when the adults die off and the infection is of young forms only. That is the period when conjunctivitis generally occurs. The infection in this month reaches 44%, in August 51.7% and in September 85.7%. In another group at pasture, infection in June reached 61.7%, in July 76%, in August 79% and in September 90.5%. Until 12th August only young forms were found. At the end of August adults appeared. In October infection reached 91.2% in animals in the abattoir and 91.1% in those under observation at pasture. In November-December it fell to 55-61% and its lowest point was reached in April and May. He recommends the treatment of all animals during December to February, so that contact in summer with the intermediate host (*Musca*) will be avoided. The eyes should be irrigated three times in succession with 50-75 c.c. of a solution of 1.0 gm. iodine crystals and 1.5 gm. potassium iodide in 2,000 c.c. water. C.R.

(281f) Panasyuk dosed 600 horses heavily infected with strongyles and *Parascaris equorum* with hexachlorethane. He found that a dose of 0.4-0.5 gm. per kg. body-weight was very effective but thinks that its efficacy against ascarids should be further tested. The drug was given with food or, on some occasions, through a stomach tube. There was no toxic reaction at ordinary doses, but a dose of 6 gm. per kg. body-weight was toxic although it did not kill the horse. Post-mortem, however, there were lesions in the internal organs indicating the toxic effect of the drug. C.R.

(281g) To elucidate the controversy on the merits of carbon tetrachloride as an anthelmintic, Belyaev used carbon tetrachloride on 3,122 horses of pure breed and full blood, giving them a dose of 50 c.c. and foals a dose of 10-15 c.c., followed by a solution of Glauber's salt, 200 gm. for adults and 50-80 gm. for foals. He reports very good results. He strongly recommends carbon tetrachloride for the mass treatment of horses infected with parasites, but considers as contra-indications serious diseases of liver, heart and kidneys. The drug should not be used in emaciated and sick horses. C.R.

(281h) Kononov reports that in horses with piroplasmosis and nuttalliasis which were dying in spite of specific treatment, post-mortem examination revealed a very heavy burden of strongyles, *Parascaris equorum* and Anoplocephala. He considers that treatment of horses against worms will greatly increase the value of haemotherapy in these protozoan diseases. C.R.

(281i) Demidov & Orlova describe a case of death of a piglet caused by *Cysticercus tenuicollis* which was located in very large numbers in the liver. They found that farm dogs had easy access to the piggery and pig runs. They draw attention to this fact and recommend treatment of the dogs and their isolation from other farm animals. C.R.

(281j) In Oldenborger's opinion carbon tetrachloride is the best anthelmintic against strongyles and ascarids. In heavy breeds of horses he uses 80-120 c.c., and in foals of 6 months to one year 20-30 c.c. of carbon tetrachloride, given in gelatin capsules. C.R.

(281k) Bildushkinov found that 10-20 c.c. of turpentine oil given intravenously produced good results in horses infested with *Rhinoestrus*, *Parascaris equorum* and *Parafilaria*. C.R.

(281l) Domets reports good results obtained in the treatment of thelaziasis in 42 heads of cattle. He began by irrigating with 3% boric acid, later introducing five drops of 5% ichthyol-iodoform emulsion in cod liver oil into the conjunctival sac. C.R.

(281m) Trusov used sulphantrol as a powder sprayed into the conjunctival sac of cattle infested with *Thelazia*. He found it to be very effective in the control of thelaziasis. C.R.

(281n) Turunova treated goats and sheep infested with *Muellerius capillaris* by giving intramuscular injections of 1% aqueous solution of muriate of emetin in doses of 0.3 c.c. of solution (0.003 gm. of drug) per kg. body-weight. Treatment was repeated two days later. Microscopical examination 10-12 days later showed that "intens" efficacy was 93.7% and "extens" efficacy 20%. After a second treatment conducted 25 days later with 0.2 c.c. of 1% muriate of emetin per kg. body-weight in five goats the "intens" efficacy was 100% and "extens" efficacy 90%. Out of twelve sheep treated with two injections, six were cured. The remaining six underwent another course of treatment and of these, five were cured. C.R.

(281o) Boev & Okorokov treated 50 sheep of 50-74 kg. body-weight 2-42 days before lambing with a dose of 0.5 gm. of phenothiazine per kg. body-weight. There were no abortions and the lambs produced were all in good health. C.R.

(281p) Kayukov states that carbon tetrachloride injected into the crop of birds infected with parasites is as efficient as when introduced *per os*. There were no ill-effects. [The species is not mentioned.] C.R.

(281q) Efremov obtained good results in the treatment of bears in the Zoo with 1.0-4.0 gm. phenothiazine per animal. The polar bear received 3.0 gm. phenothiazine with the daily ration of meat. Twenty-four hours later a very large number of dead ascarids were found in its cage. The treatment was repeated twice at 3-day intervals and after the third dose, which was 4.0 gm., only three worms were found in the cage next day. A brown bear received phenothiazine mixed with bread and the result of the treatment was very good. C.R.

(281r) Petrochenko treated ducklings experimentally infected with *Polymorphus magnus*, using kamala in a dose of 1.0 gm. per kg. body-weight *per os* and carbon tetrachloride in a dose of 2.0 c.c. per kg. body-weight injected into the crop. He found that kamala gave only 11.2% efficacy, whereas carbon tetrachloride gave 98.3%. C.R.

282—Veterinary Medicine.

- a. TODD, A. C., HANSEN, M. F., KELLEY, G. W. & WYANT, Z. N., 1949.—“Continuous phenothiazine therapy for horses. Part I. Effect on the worm parasite.” 44 (10), 411-414.
- b. FOSTER, A. O., 1949.—“Notes on veterinary parasitology. Further data on ascaricidal dosage of sodium fluoride for swine.” 44 (10), 428.
- c. FOSTER, A. O., 1949.—“Notes on veterinary parasitology. New treatments for dog heartworms.” 44 (11), 460.
- d. HANSEN, M. F., TODD, A. C. & KELLEY, G. W., 1949.—“Continuous phenothiazine therapy for horses. Part II. Hematological studies with a note on postmortem findings.” 44 (11), 461-464, continued on p. xx.
- e. WERNER, J. J., 1949.—“Caricide in the treatment of strongyloidiasis in the dog.” 44 (12), 496-497.

(282a) In a study of the effect of continuous low-level phenothiazine therapy on the intestinal helminths and on the well-being of horses, four groups each of three horses were given 0.5, 1.0, 2.0 or 4.0 gm. of phenothiazine daily for 52 weeks. The horses were kept almost entirely in box stalls. The faecal egg-counts made at four-weekly intervals are tabulated. The data established that 4.0 gm. daily was the most effective dose, but it was considered that with rotation from pasture to pasture where 1-10 acres are available for each horse, 2.0 gm. and perhaps 1.0 gm. daily would be as effective. A relation was noticed between the amount of phenothiazine given and the fertility of the eggs passed. Post-mortem examination of one horse from each group showed that a significant reduction had occurred in the numbers of immature *Strongylus vulgaris* in the anterior mesenteric artery. R.T.L.

(282b) [Foster gives a popular account of the recent findings of Enzie (for abstract see Helm. Abs., 18, No. 38f).]

(282c) In contrast to the antimorials, the arsenicals have a definite lethal effect on adult filarial worms but are only slightly lethal to the microfilariae. Otto's work on arsenamide is summarized. It is considered advantageous to follow “caparside” treatment with a course of foudadin. As caricide (=hetrazan, 84L) acts quickly on the microfilariae and is easily administered by the mouth, experiments with a combination of “caparside” and caricide are suggested. R.T.L.

(282d) At the end of a 14-months test no significant differences were found in the erythrocyte counts of four horses given 0.5, 1.0, 2.0 and 4.0 gm. of phenothiazine daily. The haemoglobin concentrations of the blood were higher during the last two months of the experiment than during the pre-treatment period. The mean corpuscular haemoglobin concentration and the mean cell volume remained fairly constant. There were no significant macroscopical structural changes observable in the liver, heart, lungs, kidneys and spleen post mortem. R.T.L.

(282e) A spaniel weighing about 9 lb., which had an infection of *Strongyloides stercoralis* accompanied by diarrhoea, was given 400 mgm. of caricide diethylcarbamazine orally. There were no signs of toxicity. Faecal examinations made for seven days following treatment, and again one month later, were negative. R.T.L.

283—Veterinary Record.

- a. WILSON, W. W., 1949.—“Sheep husbandry.” 61 (37), 567-570. [Discussion pp. 570-571.]
- b. WINSSER, J., 1949.—“Diseases of household animals communicable to man.” 61 (43), 695-702. [Discussion pp. 702-705.]
- c. GARNER, R. J., 1949.—“Experimental toxicity of sodium fluoride.” 61 (52), 865.

(283a) Wilson mentions that in evidence given before the Hill Sheep Farming Committee, it was estimated that the annual cost of disease to the industry in England and Wales was not less than £1 million of which rather more than one-third was

attributable to parasitic gastro-enteritis. At low levels of nutrition or where there is some mineral deficiency, comparatively small infections result in the appearance of clinical cases, whereas infections twenty times as great can be tolerated where the diet is adequate. Because of dispersal of the flock, severe outbreaks are rare on rough grazings but subclinical gastro-enteritis may occur, especially in the autumn. The incidence of liver-fluke is lighter on the eastern slopes of the Pennines than on the wetter western side. Deaths are now rare as few owners fail to dose with carbon tetrachloride at least once annually. R.T.L.

(283b) Echinococcosis alone is mentioned here among the parasitic diseases of household animals communicable to man in the Netherlands. There the number of cases has fallen from 63 in 1911-15 to 18 in 1937-41. In the post-war years the incidence in slaughter animals increased considerably, e.g. in horses in the province of Gelderland from 1.7% in 1945 to 3.27% in 1946, but in sheep it remained constant. Van Amerongen had found adult *Echinococcus granulosus* in 43 out of 98 suspected dogs. These increases are attributed to the importation of dogs from Eastern Europe by German soldiers during the war and to the clandestine slaughterings for the black market. In the discussion on this paper, Thomson stated that out of 155 cysts found in the Glasgow abattoir during the previous three months, 33 were *Echinococcus* cysts and added that 591 cases of *Cysticercus bovis* were observed in Glasgow, representing 1% of the cattle slaughtered there from July 1948 to July 1949. R.T.L.

(283c) Although sodium fluoride, now widely used as an anthelmintic for swine ascariasis, may cause local necrosis of the skin if it enters a wound, only reasonable precautions need be taken by those handling the drug. R.T.L.

284—Wiener Medizinische Wochenschrift.

- a. SCHMUTTERMEIER, E., 1949.—“Zur Therapie der Oxyuriasis mit Gentianaviolett.” 99 (23/24), 267-268.

(284a) Schmuttermeyer has treated a series of 102 human cases of enterobiasis (including 16 adults) with “Oxyvioletten” Ebewe, a preparation of gentian violet in the form of dragées. Children were given one dragée (containing 10 mgm. gentian violet) per day per year of age, i.e. a six-year-old child received six dragées per day; adults received one dragée (containing 60 mgm. gentian violet) three times daily. Treatment in all cases lasted for seven days, and was repeated after a 14-day interval. In 91 cases (89.2%) the treatment was successful. Schmuttermeyer also treated nine cases of ascariasis by administering “Oxyvioletten” in exactly the same manner as for enterobiasis: in no case was the treatment successful even when repeated. A.E.F.

285—Zeitschrift für Hygiene und Infektionskrankheiten.

- a. MENDHEIM, H. & SCHEID, G., 1949.—“Über die Verbreitung des Oxyurenbefalls bei Insassen eines Kinderheimes.” 129 (1/2), 156-161.

(285a) Mendheim & Scheid report that of 99 inmates of a children's home 81 were found to be infected with *Enterobius vermicularis*. These figures correspond roughly to those previously obtained by them from outpatients at a children's clinic [see *Med. Mschr.*, 1947, 1, p. 355; 1948, 2, p. 147] although the good living conditions in the home might have been thought less favourable to the spread of infection. A probable cause of the high figure is the spread of eggs by household dust. In only two of the infected children was examination of the finger nails positive. Of the methods used for anal examination the cellophane swab proved to be the most reliable: up to three swabbings were necessary to reveal all infected cases. A.E.F.

286—Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz.

- a. GOFFART, H., 1949.—“Über eine vermutlich durch Nematoden hervorgerufene Erkrankung der Schalotten.” 56 (1/2), 19–21.

(286a) In unthrifty shallots grown at Dithmarschen (Schleswig-Holstein), Goffart found a number of nematodes of which the preponderant species were *Aphelenchoides parietinus* and *Aphelenchus avenae*. Fewer in numbers were *Cephalobus persegnis*, *C. elongatus* and *Rhabditis brevispina*; in one case *Plectus cirratus* was found. It is suggested that these nematodes, particularly the two first named, may have been responsible for the poor growth and the discolouration of the leaves. Since the eelworms overwinter in harvested bulbs, Goffart suggests that warm water treatment might destroy them. T.G.

287—Zeitschrift für Tropenmedizin und Parasitologie.

- a. KIKUTH, W. & GÖNNERT, R., 1949.—“Experimentelle Untersuchungen und Erfahrungen mit dem neuen Schistosomiasismittel Miracil.” 1 (2), 234–258.
b. GÖNNERT, R., 1949.—“Über rudimentäre weibliche Geschlechtsanlagen bei *Bilharzia mansoni*-Männchen.” 1 (2), 272–279.

(287a) Kikuth & Gönner give a full account of the research carried out on the action of the miracil compounds against the human schistosomes, and of the test methods and techniques employed. A West African strain of *Schistosoma mansoni* was used and was maintained in *Planorbis guadeloupensis* (*Australorbis glabratus*) and in an inbred strain of white mice. Monkeys were used in the more important experiments. Miracil-D is the most effective of these compounds so far discovered. The scientific importance of miracil lies in the demonstration of a new series of organic compounds effective against the schistosomes, and it has the practical advantage over the antimony preparations of being administered orally. E.M.S.

(287b) In the males of a West African strain of *Schistosoma mansoni* maintained in white mice, rudimentary female sexual organs were always present, beginning behind the genital pore ventral to the testes, lying between the intestinal caeca, and beyond the point of union of the caeca lying ventral or ventrolateral to the intestine, sometimes reaching the posterior end. Gönner calls them “resting nuclei” since they are apparently functionless, and consist of small compact nuclei with finely granular chromatin. All variations were seen from “resting nuclei” to ripe yolk cells. No rudiments of male organs could be observed in the females. E.M.S.

288—Zoologica. New York.

- a. RAUSCH, R., 1949.—“*Paradilepis simoni* n.sp., a cestode parasitic in the osprey. (Cestoda: Dilepididae).” 34 (1), 1–3.
b. RAUSCH, R. & SCHILLER, E., 1949.—“A contribution to the study of North American cestodes of the genus *Paruterina* Fuhrmann, 1906.” 34 (1), 5–8.

(288a) Rausch describes *Paradilepis simoni* n.sp., parasitic in the small intestine of *Pandion haliaetus carolinensis* in Wyoming. It possesses five testes in each segment. Rausch suggests that the intermediate host may be a fish. P.A.C.

(288b) Rausch & Schiller describe two new species of *Paruterina* in Wyoming birds. *P. chloruræ* n.sp. was found in the small intestine of *Chlorura chlorura* and can be distinguished by having 40–42 hooks of a characteristic shape and size. *P. morgani* n.sp. from *Salpinctes o. obsoletus* has 34–36 hooks, which are large and have a distinctive shape. The authors consider in some detail the relative position of the two new species within the genus *Paruterina*. P.A.C.

289—Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere.

- a. SACHS, H., 1949.—"Revision der Bunonematinae (Anguillulidae, Nematodes)." 78 (4). 323-366.

(289a) Sachs has made a study of the free-living nematodes belonging to the Bunonematinae. These are small forms which are asymmetrical in structure and carry a number of bosses and warts on the right side of the body, the left side being unornamented. They occur in tufts of sphagnum moss and under and within pads of cow dung, in association with many species of dung beetles. New subgenera and species are described and figured, all being classified as belonging to the one genus *Bunonema* Jägerskjöld, 1905: *B. (Bunonema) tuerkorum* n.subg., n.sp., *B. (Rhodolaimus) stoeckherti* n.sp., *B. (Stammeria) jakobii* n.subg., n.sp., *B. (S.) goffarti* n.sp., *B. (S.) helenae* n.sp., *B. (Aspidonema) scheucherae* n.subg., n.sp., *B. (A.) ruehmi* n.sp., *B. (A.) stammeri* n.sp., *B. (A.) weingaertnerae* n.sp. *Craspedonema* Richters, 1908 is also ranked as a subgenus of *Bunonema*. A key is provided for the several species of the subfamily. T.G.

NON-PERIODICAL LITERATURE

- 290—BARGER, E. H. & CARD, L. E., 1949.—"Diseases and parasites of poultry." London: Henry Kimpton, 4th edit., 400 pp., \$4.00.
- 291—FAUST, E. C., 1949.—"Human helminthology. A manual for physicians, sanitarians and medical zoologists." London: Henry Kimpton, 3rd edit., 744 pp., 50/-.
- 292—LABORATORY ANIMALS BUREAU, 1949.—"Catalogues of arthropods, helminths, molluscs and Protozoa of interest to medical and veterinary workers." London: Laboratory Animals Bureau, Royal Veterinary College, 25 pp.

These catalogues list 15 species of helminths, 12 species of molluscan intermediaries of helminths and 41 species of arthropods, of which a number are helminth vectors, which are now being maintained in research institutions in the United Kingdom and are available for distribution on request or by personal favour to teachers and research workers. The catalogues are obtainable free on request from the Director, Laboratory Animals Bureau, Royal Veterinary College, Royal College Street, London, N.W.1. R.T.L.